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# THE OIL WEEKLY

## OIL & GAS ENGINEERING

News Statistics


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**February 26, 1932**

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# WHEREVER OIL IS FOUND

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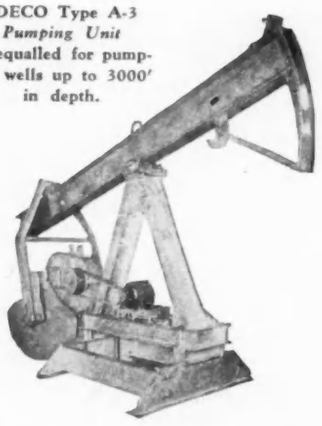

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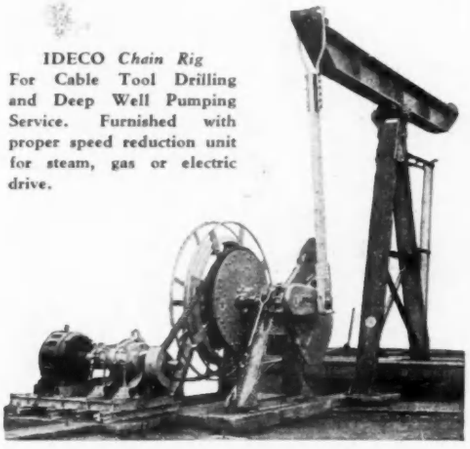

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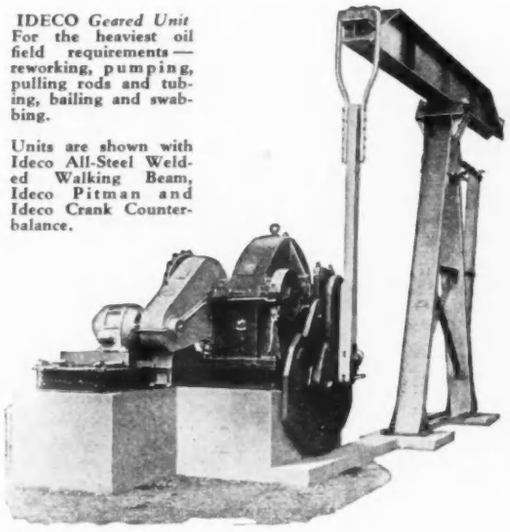

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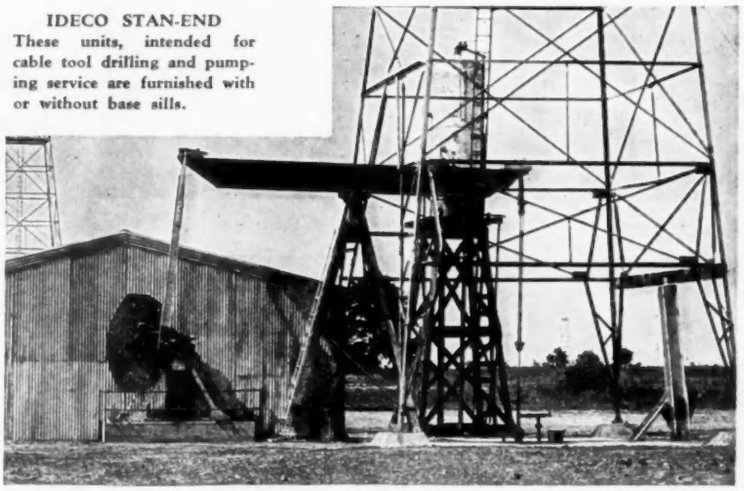

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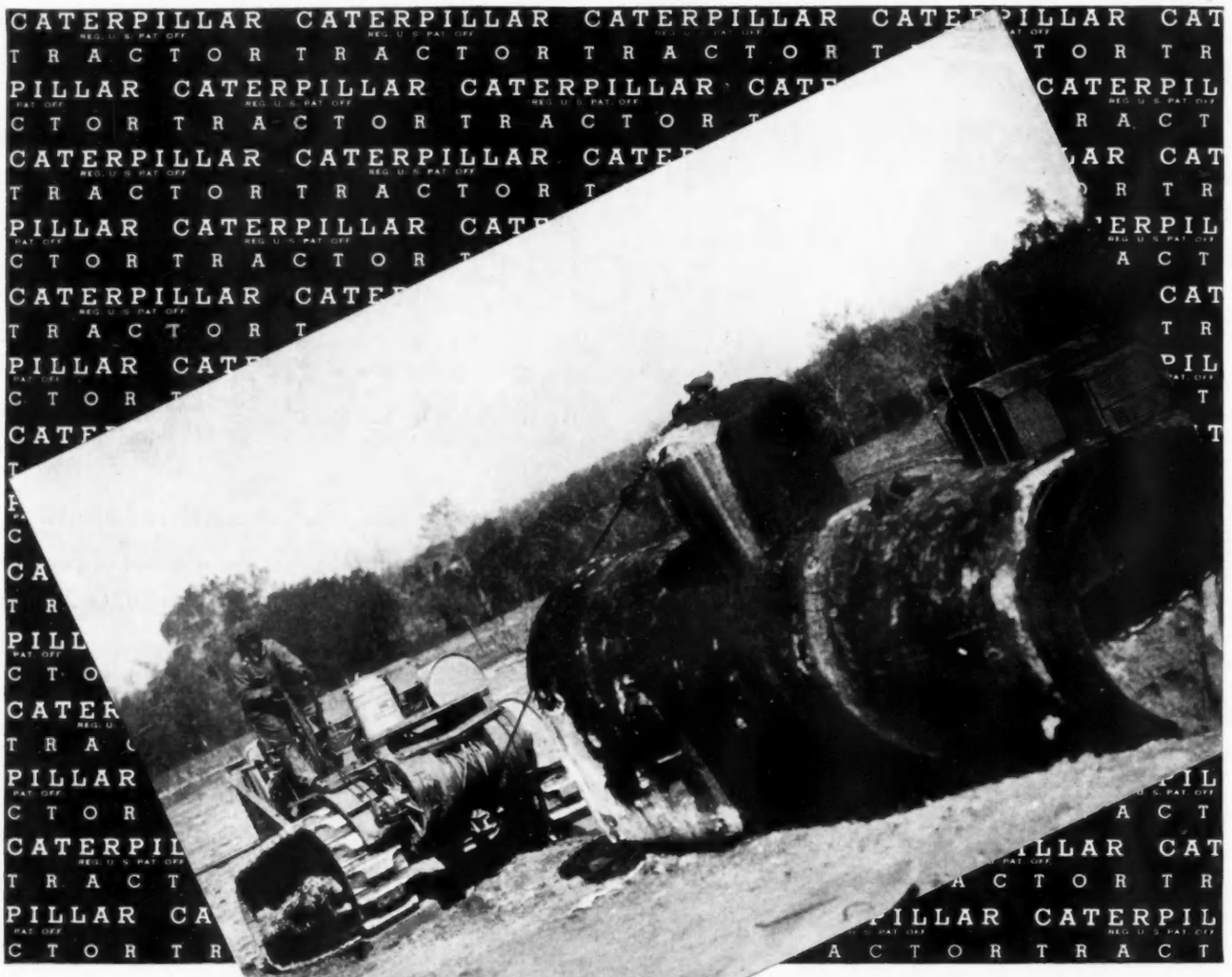


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# THE OIL WEEKLY

February 26, 1932
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S. W. ROBINSON
*Editor*

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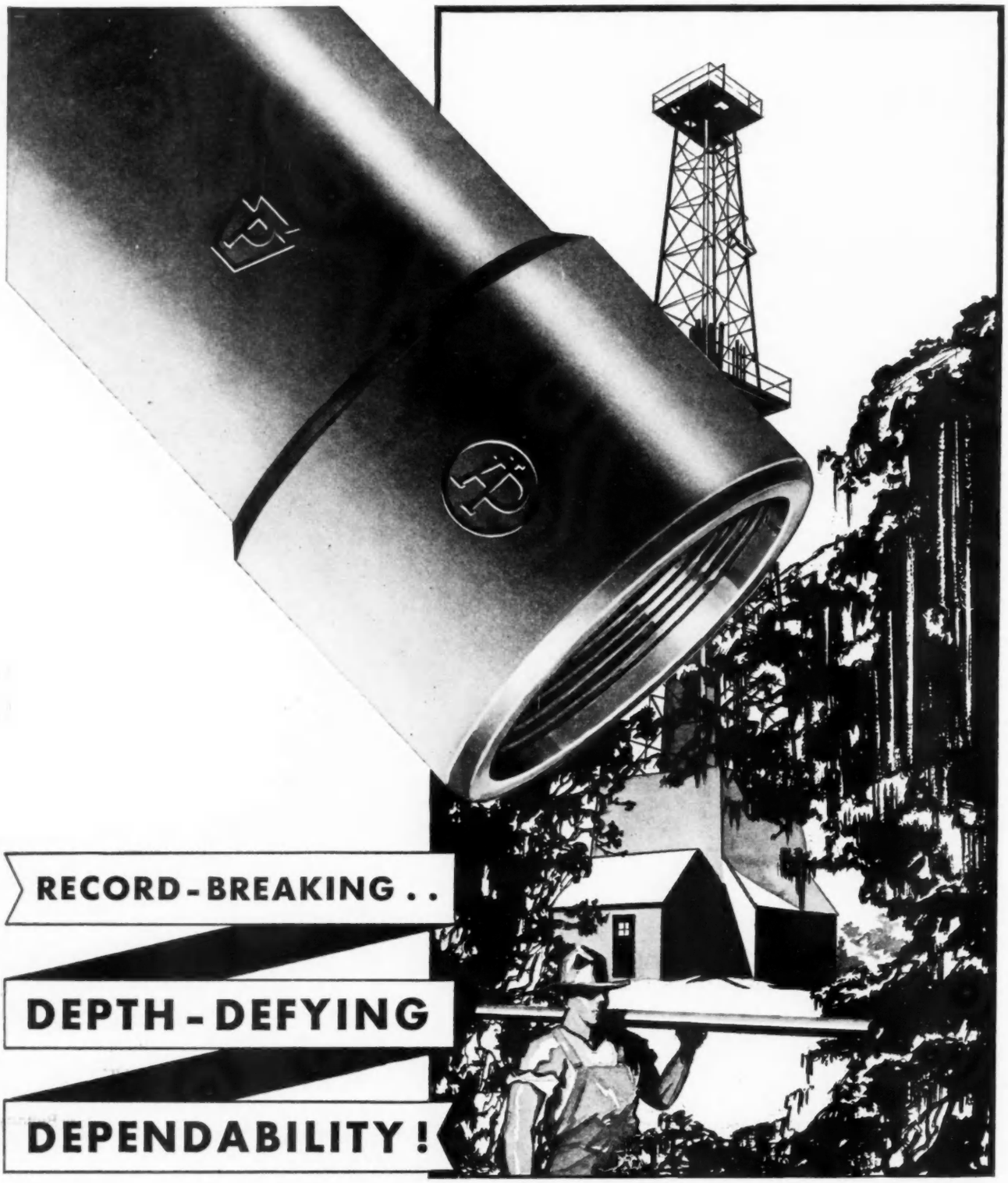

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VOLUME 64, No. 11 FEBRUARY 26, 1932

# THE OIL WEEKLY

SPECIALIZED TO OIL AND GAS PRODUCTION
AND PIPE LINE DIVISIONS

ENGINEERING • NEWS • STATISTICS

# The Changing Panorama

Too high prices, according to all calculations, would restrict the use of any product, even gasoline, but the argument that lowered prices will increase consumption is proving a fallacy in all commodities. Current reports indicate that consumption of gasoline in the United States is at its lowest, the volume having held up comparatively well during previous months of the depression. Prices have been lowered and lowered again in a vain attempt to encourage motorists to buy, but as the prices go lower so does consumption. One argument of those who hold that lowered prices will help consumption might be that the non-reducing tax on gasoline is holding up the price so that gasoline is not cheap in comparison with other commodities. But in all lines of general consumption the condition seems the same. All prices are down and there is no orgy of buying. The answer apparently is that business can serve itself as well by holding up prices and only losing from reduced volume; otherwise it seems a question of losing both on price and volume.

## Gasoline Stocks

Meanwhile stocks of gasoline at refineries continue to mount. In some quarters it is anticipated that good business for gasoline is coming within a few weeks, when the spring season opens. General conditions and changes in banking arrangements probably do indicate that there will be improvement. Another encouragement on the supply situation is that the industry is divided into two schools of thought on proper procedure as to storing gasoline during the winter against summer demand. Those holding to the storage idea are strong units with tanks and cash for such procedure.

It took a wide area and a thick sand to make East Texas more productive of oil than of litigation. The long expected decision of the federal court passing upon the propriety of the Texas governor controlling oil production with militia called out to handle a "riot," has really done little to clarify the situation. Property rights under the constitution have been upheld and protected from executive rulings, but it is intimated that a similar ruling from a different source would be permissable. The soldiers can stay in the field and enforce the orders of the railroad commission. Strict regulation

*A scene in Poland*

is permitted under the new conservation statute in Texas, and the commission has before it testimony which admits the same rate of recovery as was ordered by the governor and enforced by the soldiers. The decision has been held as applying only to wells of the plaintiffs in the case, and even they have elected to maintain their recovery in line with the rest of the field. Appeal of the decision will probably be had, but more for the interest of establishing the powers of the governor in proclaiming martial law and of such troops, than as it affects the production of oil. Lack of discord at the recent hearing at Austin would indicate that present temper of the operators would work to maintain restricted orderly recovery without other administrative power than public opinion. Except that minority opinion often can disrupt such arrangements, the East Texas situation appears well in hand.

## Oils on the Board

That oil share values are influenced more by general conditions as reflected on the stock exchange, than by real conditions within the industry itself, is well shown by a chart of relations as between oil stocks and industrials and railroads over a period of years. The oil industry has had some exceptional years during periods when general business was not so good, but share values followed the general trend. Since the peak periods of 1929-30 the relation has been most pronounced, oil shares remaining uniformly under other industrial stocks. Page 20

### The Oil Man's Calendar

MARCH
- 7-8 *Committee D2, Cleveland, Ohio.*
- 7-11 *American Society for Testing Materials, Cleveland, Ohio.*
- 10 *California Oil & Gas Association, Los Angeles (Annual Banquet).*
- 14-18 *American Chemical Society, New Orleans, Louisiana.*
- 24-26 *American Association of Petroleum Geologists, Oklahoma City, Oklahoma.*
- 21-27 *Oil Equipment and Engineering Exposition, Los Angeles (Third Annual).*
- 28- 1 *American Chemical Society, New Orleans, Louisiana.*

APRIL
- 11-16 *American Oil Burner Association, Boston, Mass. (Ninth Annual).*
- 14-15 *Southwestern District A.P.I. Division of Production, Tyler, Texas (Spring Meeting).*
- 21-22 *National Petroleum Association, Cleveland, Ohio (Semi-Annual).*
- 22-24 *Petroleum Industry Electrical Association, Dallas, Texas (Baker Hotel).*
- 27-29 *National Pipe and Supplies Association, White Sulphur Springs, W. Va.*

MAY
- 4- 6 *National Foreign Trade Council, Honolulu, Hawaii.*
- 9-11 *Natural Gas Department, American Gas Association, Tulsa, Oklahoma.*
- 9-13 *National Fire Protection Association, Atlantic City, N. J.*
- 17-19 *Natural Gasoline Association of America, Tulsa, Oklahoma (Mayo Hotel).*

JUNE
- 1- 3 *American Petroleum Institute (Mid-Year Divisional Meetings), Tulsa, Oklahoma (Mayo Hotel).*
- 6- 9 *National Association of Purchasing Agents, Detroit, Michigan.*
- 20-24 *American Society for Testing Materials, Atlantic City, N. J.*

SEPTEMBER
- 14-16 *National Petroleum Association, Atlantic City, N. J. (Annual).*

NOVEMBER
- 15-17 *American Petroleum Institute, Houston, Texas (Annual).*

## Mud

Mud to the ordinary lay mind and to the lexicographer has long been a substance for which the word prosaic was practically a synonym. Its early application to rotary drilling was spontaneous, hydraulic removal of cuttings producing mud automatically. Most any earth substance that would remain suspended and plastic in water was acceptable and the only early concern was damage sand or rock particles did to the pump. But in later developments in drilling the mud has become of prime consideration and the subject of much study. A few years ago it was criticized for sealing off oil sands in too hurried drilling, but now its specifications must include ability to hold back gas pressures, and to this end the engineers have worked up formulae in which viscosity and weight vie with plasticity and fluidity in importance. In the problem of pumping to the depths and against pressures of late developments, is arising a controversy as to whether mud is a fluid or a plastic solid. The problems presented and their discussion are so complex that mud probably will remain prosaic in the estimation of most people, but its study in a test tube has added just that much more to what a really well informed well driller must know. Page 16

How quickly should an oil well pay back its cost? In East Texas are some operators who are worried because continual lowering of the well average is prolonging to more than a year the period when the cost of the well can be written off. This contrasts with a time when some wells would pay for the drilling and the lease within a few days of wide open flowing. Apparently those days are gone, but there are still some operators who work on a system analogous to that of the tramp who entered a restaurant and ordered oysters, expecting to pay the bill with the pearl which he hoped to find in the oysters. No other business expects to repay capital outlay in less than a year, but it is a sign of hard times in the oil business to have to wait that long. Page 22

Low prices of crude and abundance of flowing production held back have tended for the time to obscure interest in the economical recovery of oil by means other than cracking the valve. But up in Eastern Kentucky is a property where the science of recovery has been given sufficient thought that knowledge of what they are doing to keep their crude supply constant is worthy of filing away against that day when a larger percentage of the oil supply will require more ingenuity to recover. Page 25

# Court Rules Against Martial Law Proration In East Texas

By JACK LOGAN
*Staff Representative*

MILITARY forces were still functioning in the East Texas oil field early this week pending issuance of formal orders in connection with the militia by the three-judge federal court which had expressed its opinion that martial law proration was illegal. The court decision, given in a suit involving properties of two East Texas operators, was entered at Tyler on February 18, and it held in effect that Governor Ross S. Sterling had exceeded his authority in enforcing oil proration in East Texas by military orders. Troops were withdrawn for a brief period on February 19 from properties involved in the suit, but they were later instructed to resume control over the wells on those properties, again making their supervision of the field complete, when it was found that a court order in connection with the suit had not yet been placed in effect.

The field was being left under martial law pending compliance with legal formalities which will make effective the opinion of the court, the plaintiffs in the suit being allowed 15 days for drafting a formal order reciting the court's holding, after which the order will be entered as the finding of the court. Governor Sterling will then be obliged to abandon his martial law control of the field, it is stated, unless the court should agree to vacate the order pending appeal to the United States Supreme Court, which course the governor has announced he will take.

If the court declines to take such action, however, the Railroad Commission of Texas will likely resume supervision of the East Texas field, having held a neccessary hearing on problems in the field on February 12, and attorneys having expressed certainty that the court decision would not affect the commission's supervisory powers in the field. If the commission assumes control, furthermore, Governor Sterling will likely keep troops in the field to assist the commission in enforcement of "prudent and reasonable" operation of wells to which the recent court opinion said operators are entitled.

The state troops were used in such manner, solely for guarding property and supporting the railroad commission in its regulatory work, from August 17, 1931, when martial law was originally declared, until October 13.

Supervised by the commission, and with the militia aiding that body, the field would have the same standing, it is believed, as before October 13, when the original federal court order in connection with the suit was issued. That order enjoined the railroad commission from further regulating wells in the field, and it led immediately to assumption of full control by Governor Sterling. It is foreseen, consequently, that if the commission resumes control of the field it may face renewal of litigation, with operators attacking such order as it may issue as not being "prudent and reasonable."

Under the federal decision given out at Tyler the plaintiffs, Eugene Constantin and J. D. Wrather, were granted a permanent injunction restraining Governor Sterling, Brigadier General Jacob F. Wolters, and Adjutant General W. W. Sterling from interfering with "prudent and reasonable" operation of the plaintiffs' wells. The plaintiffs had previously obtained a temporary injunction against the governor and other state officials, and a hearing in their suit was held in Houston early in January before a three-judge federal court which was composed of Circuit Judge J. C. Hutcheson of Houston and New Orleans, Judge Randolph Bryant of Serman, Texas, and Judge William I. Grubb of Birmingham, Alabama. Formal judgment was withheld after the trial pending filing of briefs by counsel on both sides, although comment and questions by the judges during the trial and a final statement by Circuit Judge Hutcheson, presiding, made it appear almost certain that a decision would be made in favor of the plaintiffs and against the governor and his co-defendants.

In making known the decision in the suit an 11,000-word opinion was written by Judge Hutcheson and it was concurred in by Judges Grubb and Bryant. The court held that the defendants had been illegally interfering with and depriving the plaintiffs "of their undoubted right to operate their own properties in a prudent and reasonable way, and in accordance with the laws of the state, and that from further interference, pending the final disposition of this suit, they must be enjoined."

At the conclusion of the opinion it was pointed out, further, that the authority of the Railroad Commission of Texas to enforce proration to conserve the state's resources yet remains to be decided by the courts.

Stripping the suit of what were regarded as complicating secondary considerations, the opinion declared that 'The case involves merely the right of a citizen to relief against acts in deprivation of his property, and the questions of martial law and the power of the governor come up as incidental to the inquiry, and are drawn into it and affected by it only in so far as it is necessary to settle that inquiry."

In this connection it was stated in a history of the case, given along with the opinion, that "When the matter came on for hearing January 4 . . . the case had changed from its original aspect . . . to one challenging as an arbitrary and tyrannical taking over of plaintiff's property, the shutting in of their wells pursuant to the military orders issued under the direction of the defendant Sterling, by the defendant Wolters. . . ."

### Reason for Martial Law

The suit is the outgrowth of chaotic conditions and unrestrained production in the East Texas oil field last summer. At the middle of August, 1931, Governor Sterling's called session of the legislature terminated with passage of new conservation and pipe line laws fashioned to replace

former laws of similar nature which had proved ineffective. Prompt signature by the governor placed the new laws in effect immediately; but the railroad commission, which was charged with administering them, was left temporarily with its hands tied, bereft of the old laws, and facing the necessity for giving East Texas operators 10 days notice of a hearing before issuing conservation orders under the new laws. In the meantime the flood of oil in East Texas swept on, rapidly swelling; and with many wells running wide open, production soared around 1,000,000 barrels daily. By the time the railroad commission could act it would find in East Texas a mighty debacle, it seemed. Governor Sterling, however, cut the Gordian knot which had presented itself, declared that an emergency existed, and as chief executive of the state and commander-in-chief of the militia, placed the East Texas field under martial law and ordered all wells in it closed in completely, enforcing that order by troops under command of Brigadier General Wolters. On the last day before the military shut-down went into effect the field produced considerably over 1,000,000 barrels of oil. The shut-down continued for 19 days, lasting from August 17 to September 4, inclusive. Then the martial law program was modified to permit re-opening of the field under orders of the railroad commission, made in accordance with the new conservation and pipe line laws, the commission electing to allow 225 barrels daily production per well at first although subsequently reducing the allowable with the idea of holding total output within about 400,000 barrels daily.

While the commission took an active part in the situation after lifting of the shut-down, martial law was not entirely lifted, and in fact it was still in effect when the federal court decision was reached, having continued under varying conditions. The new conservation and pipe line laws, consequently, supported by martial law, have never rested entirely upon their own merits, and East Texas operators have not had opportunity to test them in the courts.

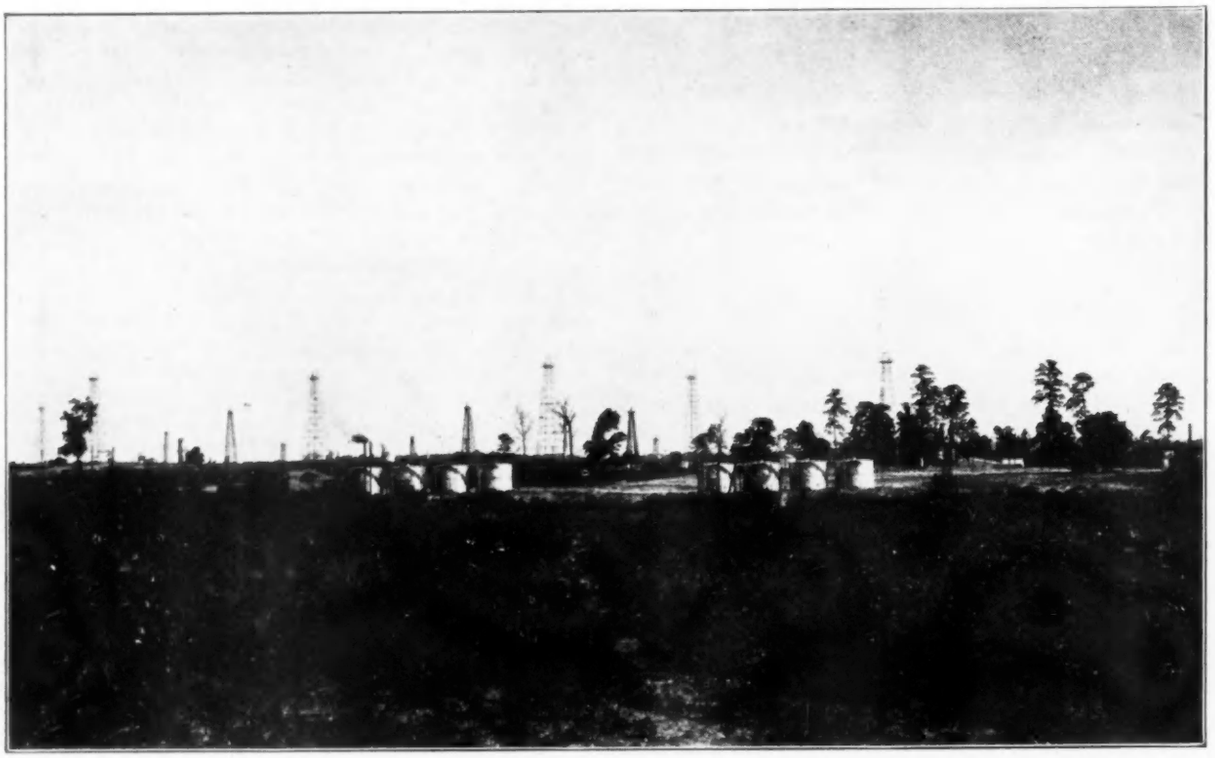
### Out of Commission's Hands

It was on October 13, 1931, that the federal case originated, Eugene Constantin and associates, then including Brock-Lee Oil Company, bringing suit in the East Texas district court of Federal Judge Randolph Bryant, seeking to enjoin the state railroad commission and other state authorities and General Wolters, commander of the militia, from enforcing the commission's orders limiting production of five East Texas wells of the plaintiffs to 165 barrels daily each. The injunction was granted. Governor Sterling, however, immediately issued a new proclamation of martial law and promulgated new orders for production control, essentially the same as those which had been enforced by the railroad commission, but with the commission having no part in their enforcement and being free to obey the restraining order of the federal court, a course which it chose to follow. General Wolters, however, was instructed by the governor to enforce the new orders, and he followed the instructions. Judge Bryant held the general in contempt of court, and will conduct a hearing for him, although no date for the hearing has been set.

Plaintiffs in the federal suit next requested a constitutional hearing before a three-judge court, again asking for judicial relief from what they considered interference with their rights, naming the governor and other state officials in the new action in addition to the general and the commission as respondents. Meanwhile Brock-Lee Oil Company had withdrawn from the suit.

In the hearing at Houston the plaintiff submitted its propositions, as follows: that no state of insurrection, as claimed by defendants, existed in fact, and that action of

(*Continued on page* 43)



*A view in the Kilgore District of the East Texas Field*

# Railroad Commission Ready To Issue East Texas Order

***HOUSTON.—The Railroad Commission of Texas was virtually ready late Tuesday, February 23, to issue an order regulating production in East Texas, and issuance of the order was expected to be the next major move in the sequel to the recently announced federal court opinion holding East Texas martial law proration illegal.***

***Interviewed in Houston Tuesday afternoon, Fred Upchurch, assistant attorney general and advisor of the railroad commission in oil matters, stated that a contemplated conservation order of the railroad commission for East Texas was approximately two-thirds complete, and that he was still working on it. The commission was expected to announce the order immediately upon its completion.***

***In the meantime no formal order had been issued by the three-judge federal court in connection with the injunction for which E. Constantin and J. D. Wrather, plaintiffs in the martial law suit, had applied; although the court by Tuesday noon had under advisement a proposed decree, submitted by attorneys for the plaintiffs, calculated to place in effect the provisions of the court opinion holding that plaintiffs should be given relief against the restraint which had been placed upon their East Texas properties. In event of adoption by the court as its order, the proposed decree was expected to be entered at Tyler, where the suit originated, after which its contents and provisions would be made known and writs in accordance with it would be issued.***

***As submitted to the court in its final form the proposed decree had been studied by and agreed to by Joseph W. Bailey, Jr., attorney for the plaintiffs in the suit; E. F. Smith, attorney for Governor Ross S. Sterling and other defendants in the case; and Fred Upchurch, previously mentioned advisor to the railroad commission. Those men had conferred in Houston Tuesday morning with Federal Judge Joseph C. Hutcheson, Jr., in connection with the suggested decree prior to submitting it to the court, Judge Hutcheson being one of the three members of the court which heard testimony at Houston early in January for determining whether or not a temporary injunction should be granted to the plaintiffs in the martial law suit.***

## Lower Well Output Substituted for Sunday Shut-Down

TYLER, Texas.—Elimination of the ban on Sunday production in East Texas by the majority of the purchasing companies beginning February 21, coincident with the reduction of the allowable production per well from 75 to 65 barrels daily, was intended to wipe out the growing supply of distressed priced crude reaching local refineries, and in some instances the major companies. The desired results will not be obtained until state officials in charge of proration enforcement cut the daily allowable per well to jibe with the daily well quota nominated by the purchasers, as well owners who have elected to ignore the voluntary Sunday shutdown program since it was first inaugurated on December 20 will still be allowed to produce 525 barrels oil per week from each well and market 455 barrels of same with the leading purchasers. The remaining 70 barrels of oil for the week is thrown on the spot market at any price obtainable for truck delivery.

Magnolia Petroleum Company took the initiative effective 7 a. m. February 21 in adopting the 65 barrels daily quota per well, as a substitute for the six-day week plan at 75 barrels daily. Under the new plan the company is buying five barrels more per well when calculated on a seven day basis, or approximately 3500 barrels more each week than when the well quota was 75 barrels daily, with a Sunday holiday.

Sun Oil Company, Humble Oil & Refining Company, Stanolind Crude Oil Purchasing Company, Empire as & Fuel Company, Sinclair Refining Company and The Texas Company promptly followed the above company with the 65 barrel seven-day week quota. The Texas Company put its order into effect 7 a. m. February 20.

Officials of the Shell Petroleum Corporation, which has 136 producers and 37 operations listed, announced that the new crude buying plan carried their endorsement, but adoption of same will be deferred temporarily in hopes that its schedule will not conflict with allowables fixed by state authorities.

A gradual breakdown of the Sunday holiday on production became apparent February 14 when the number of wells remaining on production increased to 1115, with 170 additional wells not reporting their status during the 24-hour period. The wells on production accounted for 82,888 barrels, and an analysis of the detailed production report made by scouts credits approximately 32,000 barrels of the total as being sold, or available at distress prices. Throwing of this quantity of oil on the spot market each week

*(Continued on page 43)*

# Engineers Consider Stabilization Among Technical Sessions

By ROY E. LEIGH
*Associate Editor*

NEW YORK.—Members of the American Institute of Mining and Metallurgical Engineers held the counterpart of an old-fashioned camp meeting at New York last week. The brethren foregathered from Texas, Oklahoma, California, Europe, South America, and elsewhere, all seeking salvation.

"Stabilization," however, was the word which appeared on the program. One whole session was devoted to Petroleum Stabilization.

Some of the elders painted pictures of better times ahead. Other prophets predicted hell-fire and brim-stone, and the utter ruination and damnation of the oil industry.

Economists warned that transgressors of their laws are headed for perdition. Engineers promised salvation in technology. Lawyers, as exemplified by Judge Amos L. Beaty, of the A. P. I. congregation, prayed for legislation and governmental regulation.

East Texas, as might have been expected, affords the juiciest bone of contention; and, when that subject was exhausted, there was some discussion between Dr. Lilley and Dr. Umpleby, and other participants, as to whether or not the oil industry is like other industries.

This annual meeting, the one hundred and forty-first convocation of the membership, was divided into three main divisions, the Institute of Metals, the Coal Division, and the Petroleum Division, with concurrent technical programs peculiarly suited to each.

Papers on geophysical prospecting were heard on Monday and Tuesday; and the program of the Petroleum Division, proper, began on Tuesday afternoon with a joint session of the Engineering Research and Production Engineering sections, presided over by H. C. Fowler, acting chief engineer, Petroleum and Natural Gas Division, United States Bureau of Mines. Wednesday forenoon was devoted to a review of domestic production operations, presided over by Earl Trager, consulting geologist, of Tulsa.

The afternoon was given over to a similar review of foreign production, under the chairmanship of R. E. Somers, geologist, of the Gulf Oil Corporation, of Pittsburgh. Earl Oliver, of Ponca City, Oklahoma, presided over the Petroleum Stabilization session, on Thursday morning; and discussion of the papers there presented was devoted largely to the new concept of reservoir energy as a common attribute of the pool. Dr. Joseph E. Pogue, consulting engineer, of New York, presided over the Petroleum Economics session, on Thursday afternoon, in the absence of H. J. Struth, staff economist of THE OIL WEEKLY, who was named last year as chairman. The general session following the Petroleum Division dinner at the Commodore Hotel, on Thursday evening, centered around an address by Judge Amos L. Beaty, President of the American Petroleum Institute, who announced his acceptance of a program of curtailment by statutory enactment, with commissions and umpires to administer the law.

Scott Turner, director of the United States Bureau of Mines, was elected president of the Institute; and Earl Oliver, of Earl Oliver & Company, of Ponca City, Oklahoma, was elected chairman of the Petroleum Division. Hallan N. Marsh, of General Petroleum Corporation, Los Angeles, was elected associate chairman; and Professor H. C. George, of the University of Oklahoma, at Norman, was elected secretary-treasurer.

The new executive committee includes Earl Oliver, as chairman; C. E. Beecher, chief petroleum engineer, of the Empire Companies, of Bartlesville, Oklahoma, retiring chairman of the Petroleum Division; E. L. Estabrook, petroleum engineer, of Pan American Petroleum and Transport Company, New York; R. S. Knappen, petroleum engi-

—Photo by Blank-Stoller.

**SCOTT TURNER**

***Director of the United States Bureau of Mines, who was elected president of the American Institute of Mining and Metallurgical Engineers.***

# and Economics at New York

neer, of Gypsy Oil Company, Tulsa; Dr. J. E. Pogue, consulting engineer, of New York; John R. Suman, director of Humble Oil & Refining Company, of Houston; T. E. Swigart, of Shell Oil Company, of California; and Dr. J. E. Umpleby, petroleum engineer, of Norman, Oklahoma.

Other officers were elected as follows:

Vice chairman, Production Engineering—E. A. Stephenson, Missouri School of Mines, Rolla, Missouri.

Associate vice chairmen, Production Engineering—Carol V. Sidwell, Amerada Petroleum Corporation; L. C. Uren, University of California, and W. V. Vietti, The Texas Company.

Vice chairman for Production—H. J. Wasson, geologist, New York City.

Associate vice chairman for Production—Harry F. Wright, Tulsa, Oklahoma.

Vice chairman for Economics—Henry J. Struth, staff economist, THE OIL WEEKLY, Houston, Texas.

Vice chairman for Engineering Research—H. C. Fowler, acting chief engineer, Petroleum and Natural Gas Division, United States Bureau of Mines, Washington, D. C.

Vice chairman for Engineering Education—C. M. Young, professor of mining engineering, University of Kansas.

Vice chairman for Refining Engineering—H. W. Camp, Empire Refineries, Tulsa, Oklahoma.

—Photo by Blank-Stoller.

**EARL OLIVER**

***New chairman of the Petroleum Division and chairman of Executive Committee, Petroleum Division, American Institute of Mining and Metallurgical Engineers.***

## HIGHLIGHTS OF NEW YORK MEETING

### Changing Concepts in the Petroleum Industry

THE lawyers cannot come into the picture until engineers have decided regarding the division or conservation of reservoir energy. We engineers will have to guide the lawyers.
—EARL OLIVER, *Chairman of Petroleum Stabilization Session.*

CONSEQUENT on the wider recognition of the function of gas in the development and production of oil is the concept, rapidly gaining ground, that every oil pool possesses three resources: oil, gas, and reservoir energy. In equity the oil and gas in a particular tract belong to the owners of the mineral rights in that particular tract, but the reservoir energy is a common attribute of the pool because of the nature of its origin and existence . . . reservoir energy is rapidly coming to be considered the common property of the owners of a pool . . .

Probably more of the ills of the petroleum industry can be traced to the "law of capture" than to any other cause . . . It is inconceivable that, had our present knowledge of the function of gas in the production of oil existed at the time of these early decisions, piracy would have thus been legalized . . .

The trend of decisions, legislative enactments, and regulations is clearly away from the law of capture and toward a recognition of oil and gas in place as the basis of control, with reservoir energy as a common asset.

In the ideal operation the gas of the reservoir should not be marketed until all the oil capable of economic recovery has been removed . . .

Most efficient development and operation calls for legal recognition of oil and gas as belonging to the owner of the mineral rights in the particular tract in which they occur and of reservoir energy as a common attribute of the pool to be used in the maximum production of oil. It should be clearly recognized that the individual pool is the one economic unit established by nature in the oil industry.
—DR. J. B. UMPLEBY, *Petroleum Engineer, Norman, Oklahoma.*

### Economics of Proration

CURTAILMENT plans appear to have a legitimate place in our economy, provided they are used to supplement the law of supply and demand, and not to defy it. Properly conducted, they can be made to serve a valuable economic func-

—Blank-Stoller

C. E. BEECHER

*Retiring chairman of Petroleum Division, elected to Executive Committee A. I. M. E.*

—Blank-Stoller

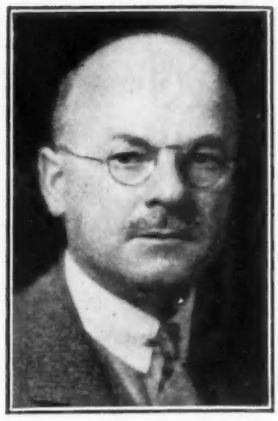
E. L. ESTABROOK

*Member Executive Committee, Petroleum Division A. I. M. E.*

—Blank-Stoller

R. S. KNAPPEN

*Member Executive Committee, Petroleum Division, A. I. M. E.*



—Blank-Stoller

J. E. POGUE

*Member Executive Committee, Petroleum Division, A. I. M. E.*

tion. But if they are managed with the idea that economic tendencies can be ignored and higher prices can be attained than are justified by underlying conditions, they will prolong and intensify the period of adjustment.

Proration, by sustaining drilling in excess of requirements, is directly responsible for the development of a huge invisible inventory in the form of the underground "potential." It has been shown . . . that the crude oil potential is a semi-inventory and that the price of crude oil correlates closely with the total inventory of oil as determined by adding to above-ground stocks the inventory-equivalent of the potential . . . The potential, or underground inventory, was created by proration and is undeniably an adverse factor in the petroleum situation.

Proration, therefore, by establishing a huge crude oil potential, set up forces that translated overproduction over into excess capacity in both refining and marketing. Unfortunately, overcapacity is more difficult to correct than overproduction.

An important advantage growing out of proration has been the establishment of the principle of ratable takings, which in effect is the recognition of the property rights that the courts have persistently denied since the inception of the industry in this country. It is generally known that the petroleum industry is fundamentally handicapped by a perversion of the common law in respect to oil and gas, with the result that the law of capture prevails and drilling in flush fields is not subject to price control. Proration, in a sense, is a defense mechanism against the destructive influence of the archaic law of oil and gas (as interpreted by the courts), and the wider recognition of the principle of ratable takings may be an important evolutionary step toward the formal adoption of unit operation. If this should prove the case, this element of proration is in the line of progress, even though by indirection . . .

Finally, the difficulties inherent in the administration of proration have led to the development of a liaison between the industry and government, both state and federal. This move in the direction of socialization of the oil industry is an important phenomenon that brings the political factor to the front in the management of the business. The drift toward the integration of politics and proration has shown some intensification during the past year and raises problems of a new order for the petroleum industry to cope with.

—DR. JOSEPH E. POGUE, *Consulting Engineer, New York.*

E. A. STEPHENSON

*Vice Chairman, Production Engineering, A. I. M. E.*

A. B. PARSONS

*Secretary, A. I. M. E. New York*

## Decreasing Foreign Demand

FREQUENT reference has been made to the increased domestic gasoline demand recorded for 1931. This increase was in the neighborhood of 7,000,000 barrels. Although smaller, relatively, than that to which the oil industry had become accustomed by virtue of the experience of preceding years, the increase was of substantial amount, particularly at a time when any increase at all could be regarded with eminent satisfaction. Less has been said, however, of the 18,000,000-barrel decline in gasoline shipments to territories and foreign countries. When the loss of business outside the United States is combined with the domestic increase, there results a net loss of some 11,000,000 barrels in total gasoline demand. The gain of two per cent in domestic sales gives way to a loss of 2.5 per cent in total domestic and foreign sales.

The United States actually has been losing ground in the international gasoline market since 1924, when shipments from this country equaled 72 per cent of the gasoline shipments from the leading gasoline-producing countries of the world. A loss in relative standing was recorded with each succeeding year. As long, however, as gasoline shipments showed an actual increase, the loss in relative standing was of little concern. Foreign producing centers annually supplied an increasing share of the foreign gasoline markets, but, until the past year, the demand abroad

(*Continued on page 45*)

# Crude Output Will Determine Profits

By AMOS L. BEATY

*Before American Institute of Mining and Metallurgical Engineers, New York Meeting*

THE oil industry can prosper only if crude production is not excessive. This is true for several reasons.

In the first place the marketing branch of the business is so highly competitive that there is little room for profits in it. There are too many service stations, too many middle men or jobbers, too many refiners eager to press their products upon the market. And the battle is between the strong. If any money is being made in oil today it is by small marketers who buy products from the refining companies and sell on guaranteed margins.

In the second place refineries are overbuilt. There is a large surplus refining capacity. If refined stocks were drawn down they could and would be replenished in short time on short notice. This excessive refining capacity is not serious, however, if the supply of crude is limited to trade requirements. True, it may reflect upon the intelligence of the industry, but if there were a shortage of crude for a few years refining capacities would be readjusted. In the meantime no great harm could result from some idle capacity. It requires no computation to see that refiners could not produce surplus stocks of products from a short supply of crude. I have in mind, of course, the increased yields from cracking. Allowance must be made for that. Still, the picture is the same; less crude is required.

I think we can have prosperity in the oil business if too much crude is not produced. A proper limit at this point would be felt all the way down the line. It would slow the refiner and slow the marketer inevitably. Once this constant pressure to make more and sell more is off, operations will be normal and there will be some return on investments.

Potential production at this time is very large, and this

(*Continued on page 47*)

# • • • Time to Think • • •

By R. L. DUDLEY

THE speech of Amos L. Beaty, president of the American Petroleum Institute, before the American Institute of Mining and Metallurgical Engineers, Petroleum Division, at New York last week, contained a great deal of food for thought.

By some it will be hailed as a surrender to governmental control, by others as a step in the direction of a type of nationalization of the oil industry. Mr. Beaty made it plain that he was expressing the personal opinion of an individual, but the fact that the president of the A. P. I. uttered it in a public speech will cause it to attract a great deal of attention.

Whatever may be said about Mr. Beaty—and we have disagreed with him many times—we have never heard it said that he was socialistically inclined. We are inclined to believe that Judge Beaty—a student of the situation—feels that it is a hopeless task to get the various elements within the oil industry reconciled to a constructive program—a program of sanity and co-operation. Certainly, many of the things which have occurred during the past few years may be offered as evidence that Mr. Beaty is right.

That some form of governmental control is inevitable—because of the importance of oil to our national defense and our everyday life—unless it is operated in a more conservative manner than has been the case, we believe is obvious.

What does the oil industry want, ultimate complete control or a method worked out whereby the oil industry can at least keep its hands on the reins of its own business, or, to use a more modern phrase, at least keep its hands on the steering wheel?

Those who blindly go ahead on the basis of individual action with disregard to the rest of the industry have a responsibility right now that they should weigh with care.

Speaking from a personal standpoint, we would shun as the very devil himself, the responsibility of causing havoc in one of America's greatest industries, by contributing to the wide open development of East Texas.

Those men who fought a hard fight against Governor Sterling and martial law have at least won their fight against the governor and martial law. If it was a principle that they fought for, they have won that.

We would like to see them big enough—far sighted enough, generous enough, to say "Now that we have won our fight in principle, we will not be responsible for chaos in East Texas. We will stand with the other producers there—we will prove our bigness by voluntarily stopping our fight, and we will join hands with our neighbors and contribute a material share in preventing a catastrophe to the oil industry and the country in general."

Gentlemen, will you do it?

# Flow of Drilling Mud

By H. N. HERRICK

*THE flow characteristics of drilling muds, as described in this paper, and the method given for solving problems relating to the flow of these muds through pipe and accessory equipment, are based on a conception that drilling muds are plastic solids like paints or greases; not liquids. The data presented in this report have been obtained from studies of California muds, chiefly those used in the Kettleman Hills field, by the Producing Department of the Standard Oil Company of California.*

*Although no claim of scientific exactness is made for the formulas and diagrams, since the data upon which they are based are not complete even for California muds, the method has proved to be a convenient means for estimating, closely enough for practical purposes, the pressures required to force muds at various rates through pipe systems in which they are handled. Certain approximations have been made to simplify the procedures so that they can be used easily in the field.*

*This paper was presented before the American Institute of Mining and Metallurgical Engineers, New York Meeting, February, 1932.* *Mr. Herrick, the author, is engineer, Research and Development Department, Standard Oil Company of California, San Francisco.*

FOR the purpose of this discussion a plastic solid is defined as a material in which no deformation or flow takes place when the material is subjected to shearing forces, until the shearing force reaches a value called the "yield point." With liquids, the smallest force will produce continuous deformation; that is, the yield point of liquids is zero. The difference between true liquids and muds is illustrated in Figure 1, which shows rates of flow through a small tube under different pressures. The flow rates of the liquids is directly proportional to the pressure and that of the muds is not. The behavior of drilling mud does not conform in every detail with the definition of a plastic solid as given, because mud actually flows slightly at pressures below its yield point. However, for practical purposes the definition describes the condition adequately and has the advantage of simplicity.

In order to make the mud-flow calculations based on the theory that mud is a plastic solid, it is necessary to know the "yield point" of mud, which hereinafter is defined by equation 1 under the caption "Viscosity Measurements," and its "viscosity" is defined by equation 2. The terms "yield point" and "viscosity" used in this paper should be understood to be the values so defined, without regard to the strict meaning of these terms as used by physicists.

To apply these values to mud-flow problems, the pressure loss is computed as a constant amount independent of the flow rate required to overcome the shearing strength of the mud, plus an amount depending upon the flow rate and viscosity, as for true liquids. This is a purely empirical assumption, suggested by the shape of the pressure-quantity curves resulting from viscosity tests of mud.

Owing to the lack of proportionality between pressure and flow rate, a single test in an ordinary viscosimeter will not give satisfactory results for mud. As an illustration, the apparent viscosity of a sample of Kettleman Hills drilling mud weighing 75.6 pounds per cubic foot, determined on a Stormer viscosimeter using different actuating weights was as follows:

| Actuating Weight, Grams | Apparent Viscosity, Centipoises |
|---|---|
| 139.96 | 53 |
| 89.96 | 103 |

The smallest weight used with the instrument would not move it, which makes the apparent viscosity of the mud infinite; in other words, the shearing force supplied by the small weight was less than the yield value of the mud. Actually, the viscosity of this mud was only eight centipoises, and its yield point was 0.2 pounds per square foot. The fact that special methods are required to determine the viscosity of any suspension of a solid in a liquid cannot be emphasized too strongly. This fact is well known to paint and grease chemists, but often is overlooked in oil-field work.

### Viscosity Measurement

Some type of viscosimeter must be used in which determinations can be made at different rates of flow. A simple apparatus adapted for use with mud is shown diagrammatically in Figure 2. This is a modified "pressure viscosimeter" such as is used in testing greases, but any convenient arrangement whereby a series of determinations can be made of the rate of reflux of the mud through a small tube of known dimensions under different pressures between two and 20 inches of water may be used. The equipment at the left of the figure is used to vary and measure the air pressure above the mud in the viscosimeter, and would not be needed in a laboratory where compressed air is available. It would be better also to make the efflux tube longer than shown in the figure. The diameter of the efflux tube should not be over 0.05 inches, and must be measured accurately, since the fourth power of the diameter is used in the formula for determining viscosity. The hole should be drilled smaller than specified and reamed or lapped smooth to size.

To use this viscosimeter, a sample of mud is put through a 40-mesh screen to remove grains that might plug the reflux tube, and a series of determinations is made of the rate of discharge in grams per 100 seconds under different pressures. These results are plotted as shown in Figure 1, using flow in grams per 100 seconds as ordinates and pressure in inches of water as abscissas. A straight line is then drawn through the plotted points as nearly as possible. Constants of the instrument should be checked with a liquid of known viscosity,

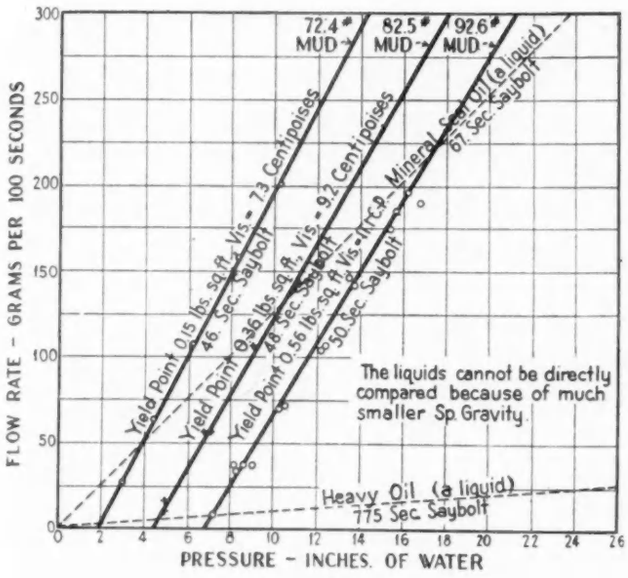

72.4# MUD
82.5# MUD
92.6# MUD
Yield Point 0.15 lbs. sq. ft. Vis. - 7.3 Centipoises
46 Sec. Saybolt
Yield Point 0.36 lbs. sq. ft. Vis. - 9.2 Centipoises
48 Sec. Saybolt
Yield Point 0.56 lbs. sq. ft. Vis. - Inf. @ 50 Sec. Saybolt
Mineral Seal Oil (a liquid) 67 Sec. Saybolt
The liquids cannot be directly compared because of much smaller Sp. Gravity.
Heavy Oil (a liquid) 775 Sec. Saybolt
FLOW RATE - GRAMS PER 100 SECONDS
PRESSURE - INCHES OF WATER

FIGURE 1

*Viscosity of Kettleman Drilling Mud at 75° F.*

such as 40 per cent sugar solution, viscosity 6.5 centipoises at 65° F.

The intercept of this line on the pressure axis is the "yield point pressure," $h$.

The yield point and "viscosity" of the mud are then computed by means of the following formulas:

$$1.\ F = 1.3\frac{D}{L}h$$

$$2.\ V = \frac{100{,}000D^4}{LQ}(H-h)$$

where for any point on the line:

$Q$ = grams discharged per second,
$D$ = diameter of efflux tube, inches (*exact*),
$L$ = length of efflux tube, inches,
$V$ = absolute viscosity, centipoises,
$H$ = pressure, inches of water, corresponding to rate Q,
$h$ = "yield point pressure," inches of water (at point where line cuts pressure axis),
$F$ = "yield point" (shearing strength of mud), pounds per square *foot*.

These formulas are an adaptation from the work of Hatschek[1] wherein the English and metric units have been used in the present work as most convenient under the local conditions.

The diagram, Figure 1, shows typical results on three samples of mud, with two liquids similarly plotted to illustrate the difference in physical properties between liquids and plastic solids. The viscosity is indicated by the slope of the lines, and it is evident that the viscosity of muds does not vary greatly, although there is wide variation in their shearing strengths. The reason for the erratic results with different weights on the Stormer viscosimeter will be clear when it is considered that such determinations are equivalent to drawing lines from the origin to different points on the line representing test results. The slopes (viscosities) of the two lines so drawn will have no physical meaning, and cannot check each other.

For the muds tested in California, the "yield point" $F$ in pounds per square foot is approximately:

$$F = 0.02[(\text{weight of mud, lb. per cu. ft.}) - 65].$$

This relation does not apply to muds lighter than 67 pounds or heavier than 100 pounds per cubic foot, or to muds that have had special chemical treatment.

Temperature variation within ordinary limits does not have much effect on yield points.

The viscosity varies between seven centipoises for mud weighing 70 pounds per cubic foot and 11 centipoises for 90-pound mud. It decreases very rapidly for material weighing less than 70 pounds per cubic foot, but such material hardly would be considered drilling mud.

### Flow of Mud in Pipe

A full mathematical description of the flow of plastic solids is given by Bingham.[2] For our purpose, it is sufficient to assume that the pressure required to start and maintain shear in a pipe filled with a plastic solid is:

"yield point pressure,"

$$(h) \text{ in pounds per square inch} = 0.333F\frac{L}{D}$$

in which

$F$ = "yield point" of the plastic solid, pounds per square foot, from viscosimeter test curves,
$L$ = length of line, feet
$D$ = diameter of line, inches

This pressure does not vary with the flow rate, but is simply the pressure that is required to overcome the shearing strength of the mud. To find the total pressure required to maintain any given rate of flow the lost head due to friction, calculated from the viscosity and flow rate, and the static pressure due to any difference of elevation between the ends of the line must be added to the "yield point pressure."

The following empirical formulas describe the flow of California muds of various densities through pipe lines. They will be recognized as adaptations of Williams and Hazen's formula for the flow of water, modified to take account of both viscosity and "yield-point pressure" of the muds.

$$\text{For 70-pound mud, } Q = 1.24D^{2.63}\left(P - \frac{33.3}{D}\right)^{0.54}$$

$$\text{80-pound mud, } Q = 1.08D^{2.63}\left(P - \frac{100}{D}\right)^{0.54}$$

$$\text{90-pound mud, } Q = 0.97D^{2.63}\left(P - \frac{167}{D}\right)^{0.54}$$

where:

$Q$ = Quantity flowing in gallons per minute.
$P$ = Pressure loss per 1000 feet, pounds per square inch.
$D$ = Inside diameter of line inches.

These formulas are considerably more accurate than the diagram actually used (Figure 3) but they are not satsifactory for practical work in the field, because they can be used only by 'trial and error" to determine the quantity of mud that can

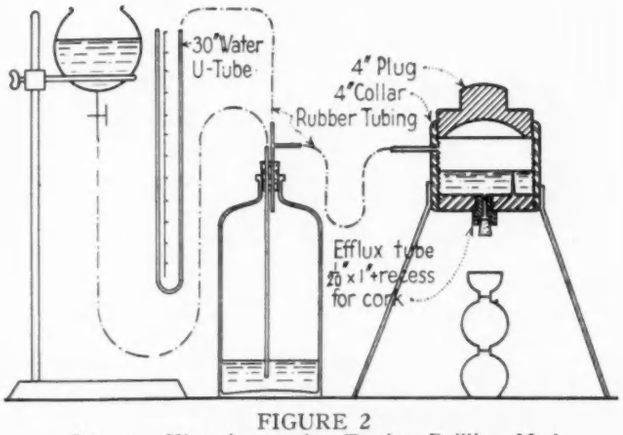



FIGURE 2

*Pressure Viscosimeter for Testing Drilling Mud*

[1] E. Hatschek: The Viscosity of Liquids, 18. D. Van Nostrand, New York, 1928.

[2] E. C. Bingham: Fluidity and Plasticity, 218 et seq. New York, 1922. McGraw-Hill Book Company.

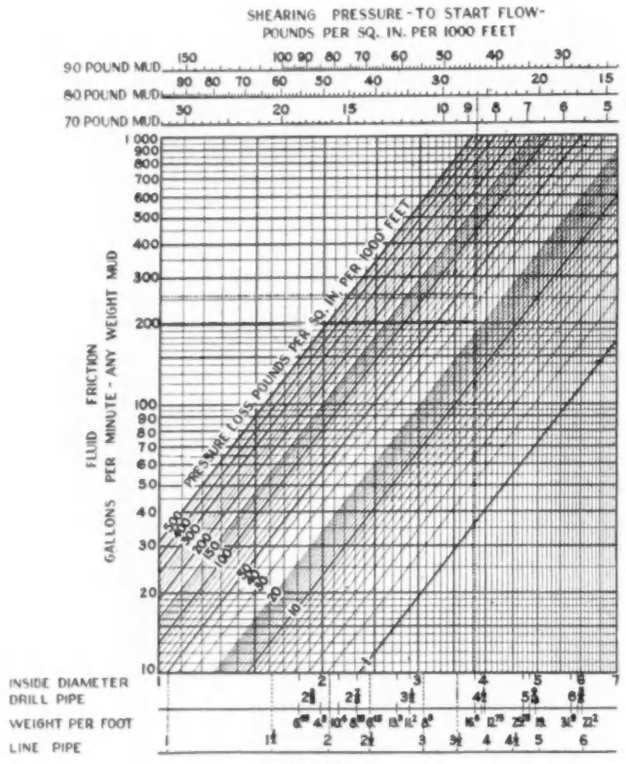

SHEARING PRESSURE - TO START FLOW-
POUNDS PER SQ. IN. PER 1000 FEET
90 POUND MUD
80 POUND MUD
70 POUND MUD
FLUID FRICTION
GALLONS PER MINUTE - ANY WEIGHT MUD
PRESSURE LOSS, POUNDS PER SQ. IN. PER 1000 FEET
INSIDE DIAMETER DRILL PIPE
WEIGHT PER FOOT
LINE PIPE

FIGURE 3

*Data for Calculating Flow Mud*

be pumped with a given pressure, or the pressure necessary to circulate a given quantity of mud through a given pipe line with various fittings, in series with an annular passage.

In order to simplify the calculation, shearing force and fluid friction are figured separately, and the same viscosity is used for all weights of mud. Since the actual viscosity range is only between seven and 11 centipoises, this approximation is justifiable for practical work, as the shearing strength of the mud is the property that is chiefly responsible for variation in its behavior.

### Flow of Mud in Wells

A series of equivalents has been computed, giving the lengths of drill pipe that will cause the same loss in pressure as various equipment such as tool joints, bits, driving stems, etc., so that the whole system can be expressed as an "equivalent length" of drill pipe—that is, a length of drill pipe that would give the same pressure drop as the actual length plus other equipment. The equivalents that are used most frequently are given in Table 1. Tool joints and driving stems are believed to be present A. P. I. standard.

### Equivalents, Shear

For calculations regarding circulation in wells, the shear in tool joints, Kelleys, hose and bits is not large enough to be considered, and it is only necessary to figure shearing pressure in the drill pipe and the annular return space outside it, the latter being expressed as a length of drill pipe of the same size as in the hole, by multiplying the length of annular space by the factor in Table 1 (inclined figures). For sizes of casing or hole not listed, the factor can be calculated as follows:

Let

$D$ = outside diameter of annular space, inches,

$d$ = inside diameter of annular space, = outside diameter of drill pipe, inches.

$d_1$ = inside diameter of drill pipe, inches,

$F$ = "yield point" of mud, pounds per square foot,

$P$ = pressure to cause shear, pounds per square inch.

The shearing resistance per foot length of annular space is

$$\pi F \frac{(D + d)}{12} L$$

The force causing shear is

$$\frac{\pi P}{4}(D^2 - d^2) \quad \text{(Pressure} \times \text{cross-sectional area)}$$

These are equal at yield point

$$\frac{\pi P}{4}(D^2 - d^2) = \pi F \frac{(D + d)}{12}$$

whence

$$P = 0.333F \frac{(D + d)}{D^2 - d^2}$$

which is the pressure drop in pounds per square inch per foot of length to start and maintain shear in annular passages.

| Feet of Drill Pipe Equal to Equipment below. Compute Fluid Friction Only—No Shear | | | | | | | | | Feet of Drill Pipe Equal to Each Foot between Pipe and Casing of Sizes Indicated. Compute Fluid Friction and Shear | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size, In. | Tool Joint | Bit 2-3/4 In. | Bit 2-7/8 In. | 3-in. Pipe 1-hose | 3-1/2 In. × 33 Ft. | Kelly Stems 6 In. × 51 Ft. | Kelly Stems 6 In. × 33 Ft. | Kelly Stems 6-1/2 In. × 33 Ft. | 5-3/4 In. | 6-5/8 In. | 7 In. | 8-5/8 In. | 9 In. | 11-3/4 In. | 13-3/8 In |
| 2-3/8 4.8 | 67 | 124 | 100 | 28 | 280 | 55 | 45 | 19 | 0.039 | 0.0132 | 0.0081 | } Fluid friction | | | |
| 6.65 | 43 | 79 | 62 | 17 | 175 | 35 | 29 | 12 | 0.024 | 0.0078 | 0.005 | | | | |
| | | | | | | | | | **0.76** | **0.58** | **0.52** | *Shear* | | | |
| 2-7/8 6.45 | 80 | 340 | 270 | 86 | 770 | 152 | 125 | 54 | 0.735 | 0.050 | 0.030 | 0.0008 | } Fluid friction | | |
| 8.35 | 60 | 260 | 210 | 57 | 575 | 113 | 93 | 40 | 0.545 | 0.037 | 0.022 | 0.0006 | | | |
| 10.4 | 39 | 168 | 134 | 39 | 375 | 74 | 67 | 26 | 0.375 | 0.026 | 0.015 | 0.0004 | *Shear* | | |
| | | | | | | | | | **1.16** | **0.81** | **0.73** | **0.50** | | | |
| 3-1/2 8.5 | 125 | 545 | 324 | 217 | 1,640 | 338 | 254 | 125 | | 0.295 | 0.149 | 0.029 | 0.0021 | } Fluid friction | |
| 11.2 | 95 | 410 | 244 | 166 | 1,220 | 255 | 189 | 95 | | 0.227 | 0.114 | 0.022 | 0.0016 | | |
| 13.3 | 71 | 310 | 183 | 130 | 970 | 192 | 142 | 71 | | 0.179 | 0.090 | 0.0175 | 0.0012 | *Shear* | |
| | | | | | | | | | | **1.30** | **1.11** | **0.72** | **0.67** | | |
| 4-1/2 | 95 | 2,050 | 1,250 | 796 | | 1,130 | 835 | 448 | Fluid friction.. { | | 1.68 | 0.205 | 0.137 | 0.019 | |
| 13.75 | 93 | 2,000 | 1,170 | 757 | | 1,110 | 810 | 437 | | | 1.60 | 0.195 | 0.130 | 0.018 | |
| 16.6 | 76 | 1,630 | 960 | 641 | | 900 | 665 | 358 | | | 1.36 | 0.165 | 0.110 | 0.015 | |
| | | | | | | | | | | | **2.29** | **1.31** | **1.10** | **0.64** | *Shear* |
| 5-9/16 | 100 | 5,720 | 3,350 | 2,300 | | 3,140 | 2,320 | 1,250 | Fluid friction .. { | | 1.72 | 1.05 | 0.094 | | |
| 22.2 | 82 | 4,700 | 2,750 | 2,050 | | 2,580 | 1,910 | 1,030 | | | 1.55 | 0.93 | 0.083 | | |
| 25.25 | 78 | 4,400 | 2,600 | 1,805 | | 2,440 | 1,810 | 975 | | | 1.36 | 0.87 | 0.073 | | |
| | | | | | | | | | | *Shear* | **2.24** | **1.87** | **0.96** | **0.76** | |
| 6-5/8 | 118 | 14,500 | 8,550 | 6,020 | | 8,000 | 5,900 | 3,180 | Fluid friction..... { | | | 106 | 0.38 | 0.085 | |
| 25.2 | 107 | 13,100 | 7,720 | 5,540 | | 7,230 | 5,320 | 2,870 | | | | 98 | 0.35 | 0.078 | |
| 31.9 | 90 | 11,100 | 6,500 | 5,150 | | 6,120 | 4,500 | 2,440 | | | | 83 | 0.30 | 0.067 | |
| | | | | | | | | | | | *Shear* | **4.03** | **1.47** | **1.03** | |

TABLE 1—*Equivalents*

The ratio of this shear pressure drop to that inside the drill pipe is

$$\frac{0.333F\,\dfrac{D+d}{D^2-d^2}}{0.333F\,\dfrac{1}{d_1}} = d_1\frac{D+d}{D^2-d^2}$$

which is the "factor" by which length of drill pipe having shear resistance equal to one foot length of annular space is calculated.

### Equivalents, Fluid Friction

For fluid friction the equivalent length of drill pipe for manifold and hose, driving stem, tool joints, bit, and return space outside the drill pipe must be computed. Losses in tool joints, etc., are based on limited test data, which can be improved upon as information accumulates, but are good enough for ordinary oil-field estimating. An approximation is necessary in converting orifices such as tool joints to equivalent lengths of pipe, since the pressure loss in square-edged contractions of this type varies about as the square of the quantity flowing, while the loss in a pipe varies as the 1.85 power of the flow. Since it is necessary to convert the whole system into an equivalent length of one-size pipe in order to simplify the computations to the point of practical utility, the factors in the table were calculated for average conditions, but may be in error up to 10 per cent for very high or very low rates of flow.

The "equivalent factor" for annular passages is different for fluid friction than for shear. It was calculated by first computing the diameter of a circular pipe having the same resistance to flow as the annular space, by the formula

$$d_m^{\,5} = (D^2 - d^2)^2\,(D - d)$$

where

$d_m$ = diameter of equivalent circular pipe, inches
$d$ = outside diameter of drill pipe, inches
$D$ = inside diameter of casing, inches

Having this equivalent diameter, the length of drill pipe corresponding to one foot of pipe of diameter $d_m$ was determined by dividing the 4.86 power of the inside diameter of drill pipe by the 4.86 power of $d_m$.

All the above constants are assembled in Table 1.

The diagram, Figure 3, is used in figuring pressure drops in the final equivalent pipe line, for three different weights of mud. The diagram is a rough means of solving the equations of flow which have been stated previously. Valves for muds of densities intermediate to those specified are interpolated for shear on the scales by eye.

### Use of Data

The method of using the data for solving mud-flow problems is much simpler than suggested by the explanation of the reasoning upon which the method is based. The procedure is as follows:

Given a length of drill pipe and specified fittings, working in a hole of known diameter, and a known pump pressure and weight of mud, to find the rate of circulation of mud, the steps are as follows:

1. Figure the equivalent length of drill pipe for shear. This is the sum of the actual length of drill pipe, plus this length multiplied by the shear equivalent factor found in Table 1, giving equivalents for the annular space between the sizes of pipe and casing specified. (Shown by black figures to distinguish from fluid friction factors.)

2. From the diagram, Figure 3, for the weight of mud used, find the shear per 1000 feet of the drill pipe, multiply it by the number of thousands of feet equivalent length in step 1, to get shear pressure loss. (This does not vary with rate of flow.)

3. Subtract the shear pressure loss from the actual pump pressure to get net pressure available for fluid friction.

4. Compute the equivalent length of (*a*) manifold and hose, (*b*) Kelly stem (*c*) drill pipe, (*d*) tool joints, (*e*) bit, (*f*) annular return space, in terms of length of drill pipe, for fluid friction, and add all these equivalent lengths to the drill pipe length.

Divide the net pressure found in operation 3 by the number of thousands of feet of determined equivalent length of drill pipe to get the pressure drop per thousand feet for fluid friction.

5. Enter the diagram (Figure 3) with size of drill pipe and pressure drop per thousand feet and read flow in gallons per minute.

Flow of mud in line pipe can be figured with the same diagram, always remembering to allow for any difference of elevation between the ends of the line.

*Example.*—Given: 5200 feet of 4½-inch, 16.6-pound drill pipe, 170 tool joints, working through 8⅝-inch casing. On six-inch by 51-foot Kelly, bit has two to three-quarter-inch holes. Pump pressure 850 pounds per square inch. How much 80-pound mud will circulate?

*Solution*:

| Equivalent length for shear: | Feet |
|---|---|
| Drill pipe length | 5,200 |
| Equivalent length outside drill pipe 5,200 x 1.31 | 6,812 |
| Total equivalent length 4½-in. shear | 12,012 |

| Equivalent length, fluid friction: | Feet |
|---|---|
| Drill pipe | 5,200 |
| Tool joints, 170 x 76 | 12,920 |
| 3 in. pipe and hose, surface | 640 |
| 6 in. x 51-ft. Kelly | 900 |
| Bit, 2 to ¾ in. holes | 1,630 |
| Space outside drill pipe, 5,200 x 0.165 | 860 |
| Total equivalent 4½-in. fluid friction | 22,150 |

| Pressure: | Pounds |
|---|---|
| Available pressure | 850 |
| Shear (Figure 3) $26.2 \times \frac{12{,}000}{1{,}000}$ | 315 |
| Net pressure | 535 |

Pressure drop per 1,000 ft. equivalent 4½-in. (fluid friction) = $\frac{535}{22.2} = 24$ lb. per 1,000 ft.

From Figure 3: Flow = 200 gallons per minute.

A liberal factor of safety should be used in selecting pump liners on the basis of such figuring, since the steam pressure at the pump is likely to be considerably less than that at the boilers, and there is likely to be 20 pounds or so more back-pressure on the pump exhaust than could reasonably be expected.

### Settling of Sand Grains in Mud

When mud is regarded as a solid, instead of a liquid, many of its properties are easily understood. For example, there is for each mud a minimum size of sand grain that can settle out. Any grain smaller than this minimum size does not have sufficient force per unit area due to its weight to shear the mud, and so cannot settle any faster than the clay particles. Dilution of the mud allows such grains to settle by reducing the "yield point." This has nothing to do with flow, but is mentioned as a matter of interest and to bring out the nature of the physical properties assigned to mud in the foregoing discussion.

The data given herein have been taken on California muds, chiefly those used in the Kettleman Hills field. Muds used in other districts may have different properties which should be determined before attempting to apply the method to them. The material is offered rather as illustrative of a useful line of thought than as a finished piece of work, with the hope that it may be developed by wider application.


### Acknowledgment

Acknowledgment is made to the personnel of the Research and Development Department of the Standard Oil Company of California, and to C. C. Scharpenberg and R. B. Rule of the Producing Department, who have cooperated in development of the method.

# The Oil Industry *and the* Stock Market

*(Abstract of paper presented before Economics Session, Petroleum Division, A. I. M. E. —New York—February 16, 1932)*

By LEON R. GURLEY
*Industrial and Petroleum Engineer*

A GREAT part of the economic illness of oil is generated from within, and can be cured from within. All available figures point to the comparative advantage of oil securities over any other major group from the standpoint of present investment value as well as that of more rapid recovery in the future.

In order to have before us a compact history of the stock market's action, there is presented in Figure 1, a chart of price ranges of three groups of stocks, covering the period beginning with 1918 and ending with 1931. The interval covers the crest of two bull markets, the bottom of the 1921 depression and, what we hope, the approximate bottom of the present period of depression. The chart shows the action of the general market as represented by 337 industrial stocks; of the railroad group as represented by 33 stocks and of the oil group as represented by 16 stocks. All figures are relative to 1926 levels, considered as 100, and the figures were taken from records of the Standard Statistics Company

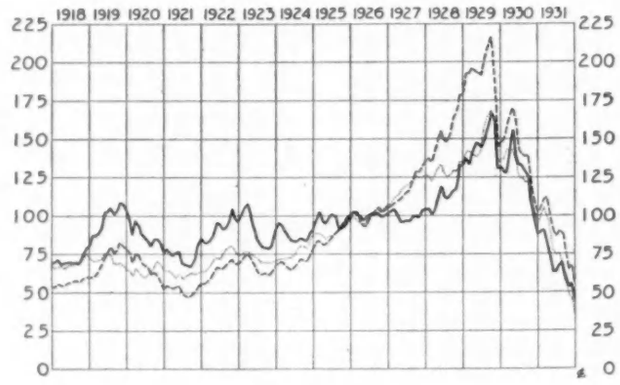



**FIGURE 1**

**Stock Market Fluctuations of Common Stocks by Groups**
*337 Industrial Stocks---------- 33 Railroad Stocks.....*
*16 Oil Stocks————*
*All Figures Relative — 1926 equals 100*
*(Data from Standard Statistics Company)*

The most striking point brought out by a study of this chart is that all groups of securities move almost at all times directly with one another. This would tend to prove that for any short term the predominating influence in the movement of the oil shares is the general market condition. The economic situation within the oil industry is reflected only in the comparative ratios of the rise or fall. The chart shows that prices moved sharply up with favorable conditions on all sides, from the time the war tide turned in our favor early in 1918 until labor troubles appeared in many industries late in 1919. These and a stiffening of money rates then broke the general market which was followed by the oil group in spite of the healthy price situation, coupled with fear of an oil shortage. Oils once again followed the general trend in 1920, in spite of its very excellent condition. Here, the general situation completely overcame the good news and the high earnings of the oil industry. The action of the oil shares in 1920 is one of the most contradictory in the history of the stock exchange.

The general economic situation touched bottom in 1921 and from that point slowly but steadly picked up until 1929. There were small disturbances due usually to a currency crises in some European country, but the trend was always upward. About the time refiners began the general use of cracking units and increased the productivity of a barrel of crude oil. The oil industry, however, was facing over-production and struggling to find a solution. All of this was purely internal trouble and the net result was distrust of oil securities on the part of the investing public. In spite of the enormous growth of the industry, oil shares as a group did not advance from 1922 until 1928. The result was that in 1928 the general list was double its 1922 price, while the oils were at the same level as in 1922.

The oils lost nothing in dollar value but in comparison with the general market they depreciated fifty per cent. The chart shows that the oils finally participated in the bull market beginning in 1928, but even then did not keep pace with the industrial list. 1931 closed with all groups at extremely low levels but with the oils comparatively lower than the general market. It is perhaps the constant threat of a flood of distress oil which brought on the general collapse of oil prices. The renewal of that threat, I believe, has now been pushed well into the background. California, Oklahoma, Texas and Kansas now have laws enacted which can control and are controlling the producing situation. The spirit of cooperation within the industry is constantly growing. A controlled reserve of raw material is, instead of a menace, a guarantee of future stability. 1931 advanced that control a long way and placed the petroleum industry in a healthier producing condition than it has been in many years; certainly since 1922.

The total petroleum market has shown less depression decline than that of any other major industry and there is no apparent reason to suspect much further decline now. With a gross volume of sales very near to its high record levels and an indispensable product, the only requisite for normal earnings is a price recovery to normal levels. During 1928 and 1929 the industry considered prices rather low, but a study of the price curve would indicate that they were probably about where they belonged. If that is true, the industry is not as far below normal as popularly supposed and the road back to good earnings and prosperity is not as long as the stock market indicates.

# Oil Would Be Included In Federal Sales Tax If Adopted

By C. L. LINZ
*Washington Correspondent*

WASHINGTON.—Unable to raise the one and one-quarter billion dollars necessary to balance the budget through the medium of increased income and corporation tax rates and the imposition of excise taxes on a small list of commodities and services, members of the house ways and means committee are giving serious consideration to a general manufacturers' sales tax to be in the form of a license tax based on gross sales.

If adopted, it is anticipated this tax will be applied to refiners in lieu of the tax of one cent per gallon on gasoline previously considered.

Necessities of life are expected to be exempted from the application of the manufacturers' tax, through which some $600,000,000 of revenue is expected to be raised.

In writing the new tax into the bill, if finally agreed upon, it is expected the committee will group manufacturers producing the various classes of merchandise and denominate the tax which each group is to bear. Companies with gross sales under a certain amount, probably $20,000, will be exempted from the tax, which is to be operative only for a stated period, probably two years, at the end of which it will be repealed.

### Excise Tax Probable

The manufacturer's tax is expected to be accompanied by excise taxes on certain imported raw materials, including refined sugar, coffee, cocoa, tea, rubber, silk and rayon, and possibly oils.

Present indications are that the tax bill, when submitted to the house, will provide a corporation tax rate of 13 per cent, an increase of one per cent, with an exemption of $2000 for corporations with taxable net income not exceeding $10,000, instead of the present $3000 exemption on $25,000; normal individual income tax rates of two, four and six per cent instead of the present rates of 1½, three and five per cent, with reduction of the exemptions from $1500 to $1000 for single persons and from $3500 to $2500 for heads of families; surtax rates ranging up to 40 per cent instead of the present maximum of 20 per cent; increased estate taxes and a gift tax to prevent evasion; the manufacturers' sales tax, and possibly taxes on the consumption of electricity and gas, and such excise taxes as may be found necessary to complete the sum aimed at.

Adoption of the excise tax on imported oils was strongly urged on the floor of the house last week by Representative Hastings of Oklahoma, who declared that it would provide revenue in the neighborhood of $100,000,000 and "contribute much to the restoration of prosperity" of the oil industry. Furthermore, he added, the adoption of the tax would enable Oklahoma to "realize more on account of its gross production tax on oil produced in the state."

Asserting that the tax of two cents a gallon on imported oil and four cents on refined products would raise $100,000,000 and materially relieve the ways and means committee of the "embarrassment" of having to levy taxes on other industries, Congressman Hastings pointed out that "the Tariff Commission found that the difference between the cost of producing crude oil in Venezuela and in this country is $1.03 per barrel, and therefore a tax of 84 cents per barrel would not result in greatly reducing the importation of oil and refined products.

"Conceding that there might be decreased importations of crude oil and refined products which would result in the collection of a reduced amount in revenue," he continued, "let me invite attention to the fact that the levying of this excise tax would stabilize the oil industry in our own country and the government would collect a far greater amount from income and inheritance and other taxes than it would lose because of reduced importations."

Denying that the imposition of the tax would increase the price of gasoline to the consumer, Representative W. A. Ayres of Kansas declared that "the friends of the oil producers of this country have shown the ways and means committee a source of revenue of anywhere from $90,000,000 to $100,000,000 without injury to any industry of the United States, and which would at the same time save from utter destruction the third greatest industry of the nation. This is far better than to put another tax on gasoline, already overtaxed in many instances by many states and cities; or by putting a tax on every check and theater ticket and many other small revenue-producing nuisance taxes.

### Asking No Unfair Advantage

"No one can claim that the American petroleum industry is asking for an unfair advantage over even its foreign competitors," he asserted. "It is asking less than it should be entitled to receive. It is conceding to its business rivals nearly double the amount of profit which it is possible for the American industry to receive, as shown by the recent report of the Tariff Commission.

"In spite of this handicap, which the American petroleum industry appears to be very willing to accept, there is every certainty that with even this degree of protection, confidence would be restored in our great oil-producing states, with the employment of hundreds of thousands of men, resulting in the renewed purchasing power of the residents in these states west of the Mississippi, and the consequent effect upon the demand for products from our industrial sections, the increased freight shipments, the re-employment of men who are either the recipients of public charity or approaching the time when they must be candidates for alms unless some such step as this is taken for the revival of American prosperity."

An unfavorable report on the tax on imported oil, however, was filed with the committee by the Department of Commerce, in which it was stated that, in the opinion of department experts, such a tax would yield no revenue since the levy which would be added to the import price exceeds the margin of advantage under which oil is imported into this country and would therefore exclude the products affected. The same would hold also, it was declared, for a tax on the basis of $1 per barrel, which entered into the committee's discussions.

# Lowered Well Allowables Prolongs East Texas Pay-Out Period

By H. H. KING
*Staff Representative*

BEGINNING 7 a. m. February 5, the maximum production allowance of each producing oil well in the East Texas field was reduced from 100 to 75 barrels daily, but about four-fifths of the wells observe a Sunday holiday on production, thereby making the actual cut read from 85.7 to 64.3 barrels daily for wells adhering to the holiday plan. By far the majority of the well owners in this field accepted the curtailed allowance as being a necessary preventive measure against a collapse of the market and price structure, and endorse the move provided no attempt is made to hold the production allowance and crude price down to the prevailing levels over a period exceeding 45 days. Continuation of orderly production in the field is contingent upon relief being given within a reasonable period, otherwise a dangerous situation will develop within the ranks of small operators that must realize a greater financial return than now possible under the new schedule to meet current obligations, or forfeit their properties.

Difficulty experienced by most operators lately in getting pipe line connections for new wells, and general knowledge of a strained crude price situation because of an unbalanced refined oil market, caused many well owners to openly endorse the reduced allowable as a relief measure. These endorsements will hold good only for a very limited period. There is danger of some of the strongest supporters of proration and orderly production programs breaking ranks, and throwing up opposition that will be beyond control should purchasers misjudge the maximum period that this financial strain can be borne by the small operators.

A sharp decline in the volume of new drilling activity is quite certain to follow in the wake of the reduced earning power of a completed well. Should this forecast be borne out during the next few weeks the purchasing companies will naturally be more aggressive for new connections since the number available will not be as great as anticipated a few weeks ago. As evidence that the new allowable is having a beneficial influence on the market situation in the field, a number of the leading companies began welcoming new connections within a reasonable distance of their field gathering lines. A number of the purchasers are now dependent upon a fixed volume of East Texas crude daily to meet their requirements, and the new allowable causes a deficit unless more connections are taken on.

The earning power of an East Texas oil well capable of producing its allowed quota of 75 barrels daily is $62.25 gross, but if the Sunday holiday is observed it is cut to only $53.37. Upon deducting the usual one-eighth royalty interest the gross revenue to well owner is only $54.47 and $46.70, respectively. Customary deductions by pipe line companies are from two to four per cent of the gross.

Using $20,000 as the average cost of a completed flowing well, it can be readily seen that approximately 400 days production under an allowable of 75 barrels per day will be required to reimburse an operator for the actual cost of drilling and completing a producer, while nearly 450 days would be required to score a payoff should the Sunday holiday be observed. These estimates do not take into consideration lease investment, deductions by pipe line companies, taxes, operating overhead, etc., none of which can be sidestepped and actually defer the pay out period much longer. Should the present rate of pay off be forced on the small operators for a prolonged period, scores would lose their properties, as nearly all have divided interests with associates, heavy oil payments, over-riding royalty interests, and debts for equipment and labor to meet.

**WHAT AN EAST TEXAS WELL IS WORTH UNDER PRORATION**

**Proration allowance changes, accumulated production and gross revenue earned, based on posted price of Magnolia Petroleum Company, by a well in the East Texas field under military restrictions to February 5, are shown in table below:**

| Proration Period from and to 7 a.m. | Allowance per well | Total days | Accumulated production | Gross value |
|---|---|---|---|---|
| **Sept. 5-Sept. 21** | **225** | **16** | **4,600** | **$3,128.00** |
| **Sept. 21-Oct. 13** | **185** | **22** | **4,070** | **2,767.60** |
| **Oct. 13-Oct. 29** | **165** | **16** | **2,640** | **1,795.20** |
| **Oct. 29-Nov. 7** | **150** | **9** | **1,350** | **1,030.50** |
| **Nov. 7-Dec. 11** | **125** | **34** | **4,250** | **3,527.50** |
| **Dec. 11-Feb. 5** | **100** | **49*** | **4,900** | **4,067.00** |
| **Total** | | **146** | **21,810** | **$16,315.80** |
| **Less 1/8 royalty interest** | | | **2,726** | **$ 2,039.48** |
| **Producer's net gross revenue** | | | **19,084** | **$14,276.32** |

* Deductions made for seven days account Sunday holidays on production.

Note—No allowance made for fixed deductions by pipe line companies from gross production, ranging from two to four per cent.

Until the introduction of the Sunday holiday on production and the last slash in proration allowable per well, owners of flowing producers have had a fairly attractive return on their investments during the period that proration has been administered by the military. The accompanying table reveals very interesting figures on the accumulated earning power of a well under each of the various allowances allotted the wells. The gross production of wells that have been on full time production, except for Sunday shut-downs, since proration enforcement by the military authorities began, September 5, to February 5 amounted to an aggregate of 21,810 barrels. When calculated on the basis of Magnolia Petroleum Company's field posted price, which has been the accepted standard, this oil has yielded $16,315.80. Deducting the one-eighth royalty interest the production for the producer's account is 19,084 barrels, with a value of $14,276.32. However, the latter two figures do not take into consideration usual subtractions by pipe line companies.

Between September 5 and December 11 when the allowance per well ranged from 225 to 125 barrels daily the average quota per well for the period was 174 barrels daily. The average has been lowered to 149 barrels daily per well between September 5 and February 5, with seven days production lost by Sunday shut-downs.

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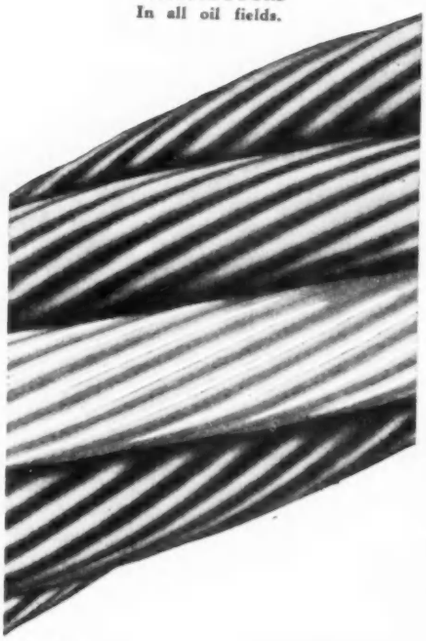

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# Yellow Strand Rotary Drilling Lines

# Repressuring Eastern Kentucky Area Makes Old Pumpers Flow

**Central station injects gas at different pressures to two sands in project of Swiss Oil Corporation**

By J. C. ALBRIGHT

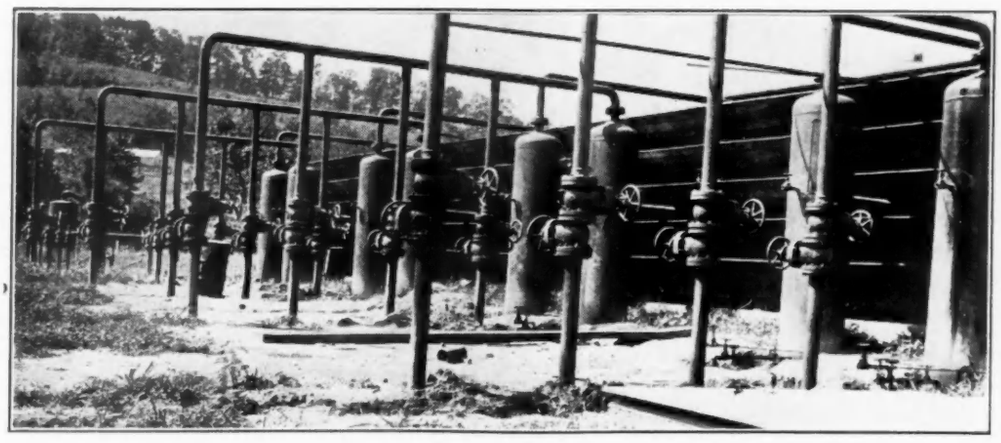
MANY old properties have been repressured in the past few years, some of which are in area where the original pressures were such that the wells flowed, caused by either gas or hydrostatic pressure. A few pools have been placed on pressure to maintain the original as found when first discovered, but a few old properties have been placed on a pressure basis so that the wells flow naturally, or one should say artificially. One old property in particular has been repressured to such an extent that the wells, though not originally flowing naturally, except in isolated cases, and then only for a short time, when first drilled, have been placed in a condition that the production from about 50 per cent of those affected is obtained by flowing from pressures placed artificially on the productive sands. An area controlled by Swiss Oil Corporation, located in Laurence and Johnson Counties, Eastern Kentucky, known locally as the Union District, has, within the past two years been affected in such a manner that those wells were caused to flow, and the number of flowing wells is increasing monthly.

This field which was discovered in November, 1917, in drilling in the well known as Felix Fyffe 1, caused a wild stampede for leases. Mountain warefare was conducted, and armed patrols were stationed by several of the lease holders to prevent others from placing drilling rigs on their properties. Conditions were finally adjusted so that a peaceful operation of the various leases was in effect. Several years later, the principal leases were acquired by Swiss Oil Corporation, with general offices in Lexington, Kentucky. At the present time, this company controls 792 producing oil wells distributed over 83 farms. To obtain the production, 60 central pumping powers were built and placed in operation, but as time went on, the production gradually declined over the entire area, until in March, 1929, it was revived by placing a portion of the area on repressure.

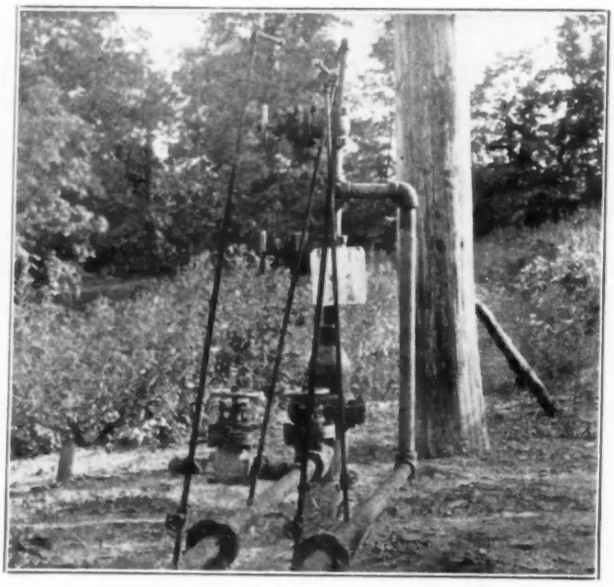
Two productive sands are found underlying the entire district, both are known as the Wier sands, found in the Mississippian formation. The upper, or First Wier is found at a depth from 600 to 800 feet below the surface, the depth being controlled by the contour of the surface of the ground. The region is in a semi-mountainous country, broken by a multitude of hills and hollows; consequently, a large number of the wells were drilled either on top of these ridges or on the flanks of them. This upper sand has a comparatively uniform thickness of 40 feet, with a shale break about 20 feet thick underlying it. Beneath the shale, the second Wier is found, having an average thickness of 30 feet. Above the first Weir is a 10-foot stray sand, ordinarily producing neither oil nor gas, but reveals itself disagreeable in the repressuring program as the operation continues.

The productive area covers the north flank of a large structure traced as a dome, on top of which gas in commercial quantities was discovered and produced for approximately 10 years before oil was found. The oil sand as discovered is a continuation of the gas sand, and both are found in each Wier. This condition has presented difficulties which will be shown later in this article.

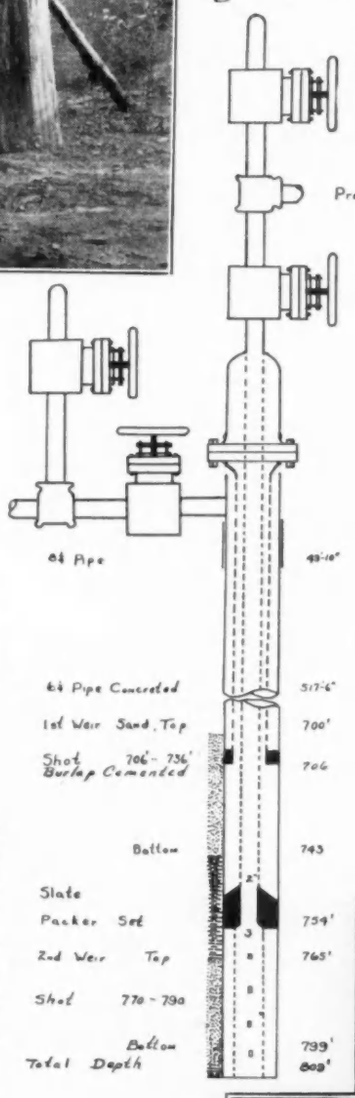
To transport the gas produced from that part of the structure, a compressor station was erected soon after com-



*Arrangement of discharge to the four zones in the repressuring program operating by the Swiss Oil Corporation, Martha, Kentucky*



*Above: Standard In-put Well*



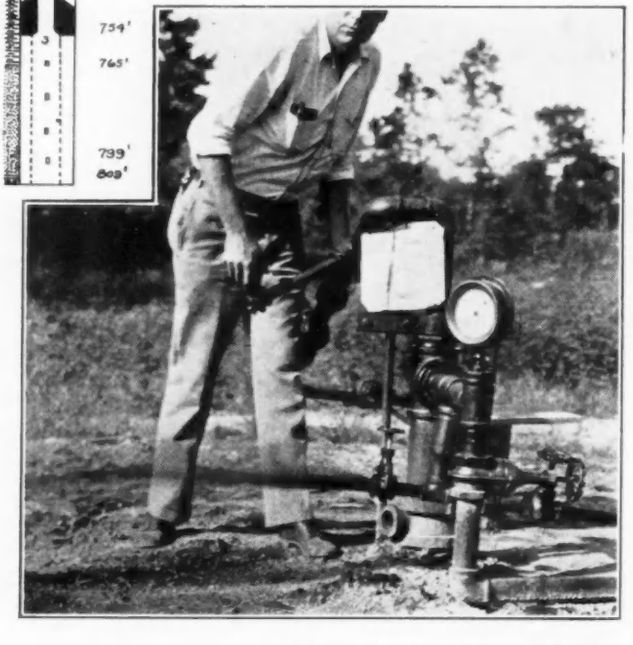

*Detail of arrangement used by Swiss Oil Corporation on input wells. This sketch shows the seating of pipe and tubing for injection to two separate sands at the same time, or to either of them as desired. Well head connections shown in detail with total depth and at which point various equipment is located.*

mercial quantities were being produced. This system carried it to various sections of the country north and east in Ohio, Kentucky and West Virginia. As time went on, the gas sands were depleted to such an extent that the booster station was discontinued as such, and the transportation system removed. At this period, the pressure in the gas area had been reduced to about 50 pounds rock pressure, which permitted only a production sufficient to operate the leases and for heating the residences of the lease employees.

When it was decided by the management of Swiss Oil Corporation to begin repressuring, the old booster station was placed in condition to utilize a part of the available gas produced from the upper section of the dome. Pressures exerted on the sand up to 300 pounds gauge was not sufficient to achieve the results expected. The conditions surrounding the first attempt was discovered later to be that the pressures still remaining in the oil productive area were much higher than those in the depleted gas zone. Wells drilled later in the repressured area disclosed that the shut-in pressure was in some instances as high as 250 pounds. Also an analysis of the sand disclosed that while the pore space averaged about 20 per cent, the extreme fineness of the grains themselves prevented the pressure exerted from pushing the oil from the area surrounding the input wells to those remaining as producers. This original oil sand pressure, which if encountered in a loosely cemented coarse sand would have permitted movement of the oil from one point to another, and would have permitted also the rapid migration of the oil from the producing area into the depleted gas zone. Under the existing natural conditions, the oil traveling through these minute interstices was retarded, both in regard to migration and repressuring. This natural yielding blockade, with only a differential of approximately 50 pounds effective pressure resulted in discontinuing the experiment temporarily.

In 1928, the idea of producing oil in this district had persisted in the minds of the officials of the company and outside assistance was retained. The firm of Dunn & Lewis, consulting engineers in Tulsa, successful operator of repressured properties for several years, was consulted in the matter. When the properties had been investigated a second time relative to repressuring, the old booster station was reconditioned and placed in operation again. During the investigation of the field, new wells were drilled for input purposes near those already on production and the pressures on both sands were tested. Without shooting the sand after it was penetrated, the casing was made gastight by cementing the string to the impervious strata above the first Wier. After a pressure of 300 pounds was applied, the sand began to take the gas, and 500 pounds was necessary to expel the oil from the bottom of the hole into the adjacent sand. However, not enough gas was pumped into the hole to cause local pressure. After this was accomplished, the well was inspected for leaks in the connections. As none developed, recording gauges were installed in order that the applied pressure could be noted and studied. After several days, with the charts changed regularly, the pressure dropped to around 250 pounds and

*Below: Representative Flowing Well*



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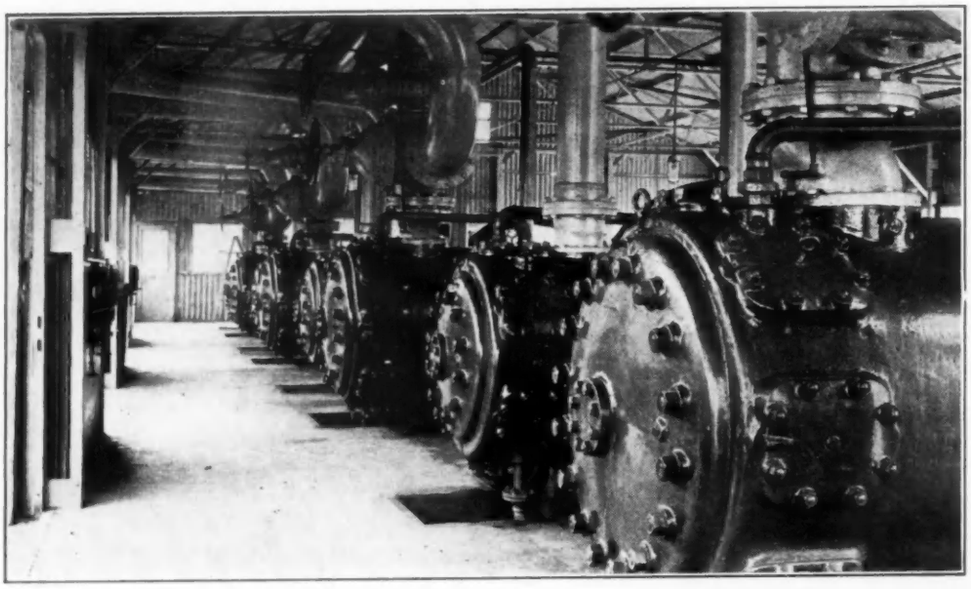


*Compressors in Swiss Oil Corporation station, Martha, Kentucky.*

*Below: Intake connections on first stage compression.*

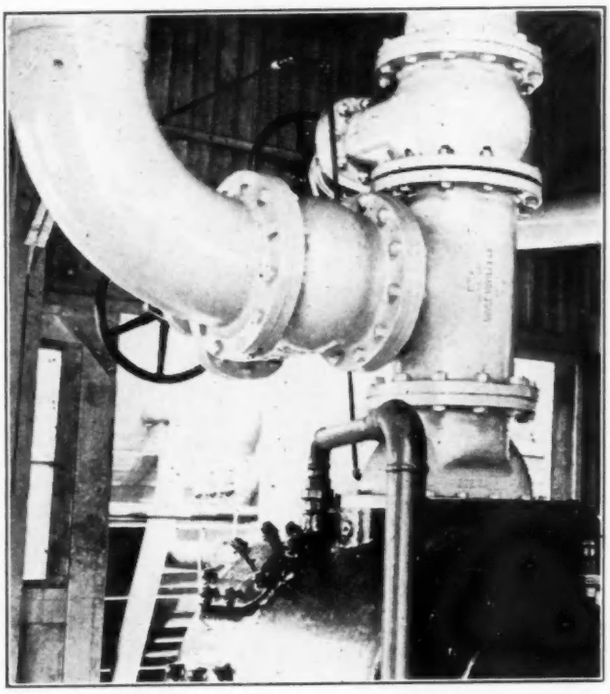
remained stationary at that point. This was then taken as the basis for applying pressure to this sand. Drilling into the lower pay, tubing was inserted with a packer set so that a seal could be obtained between the upper and lower sand for a shut-in test. The methods as appplied to the upper Wier was continued with the lower. In these tests, the respective shut-in pressures were found to be essentially the same, but the upper Wier was found to be able to take more gas than the lower.

### Handle Two Sands

In the original project, pressures have been applied through the input wells irrespective of the difference in the ability of the sands to take the repressuring medium, and it was injected through a common string of pipe. As the tests in the second attempt at repressuring had disclosed valuable information, all wells that were to be used for input purposes were prepared for injection through two separate lines. The first string was set in the formation known locally as the "Big Lime" which was a considerable distance above the first Wier and above the 10-foot stray sand. Cementing the seat in order that the repressuring medium could not escape upward through the space between the pipe and the drilled hole, this procedure at the same time excluded the fresh water encountered when drilling. Tubing was run and sealed at the point of break between the two sands, where either a hook wall packer was placed, or a burlap packer was set with cement run in on top. The head connections were separated by welding a bull plug to the tubing so that the upper joint extend through. The lower end of the plug was secured to a flange which was bolted to its companion screwed tight to the upper end of the casing.

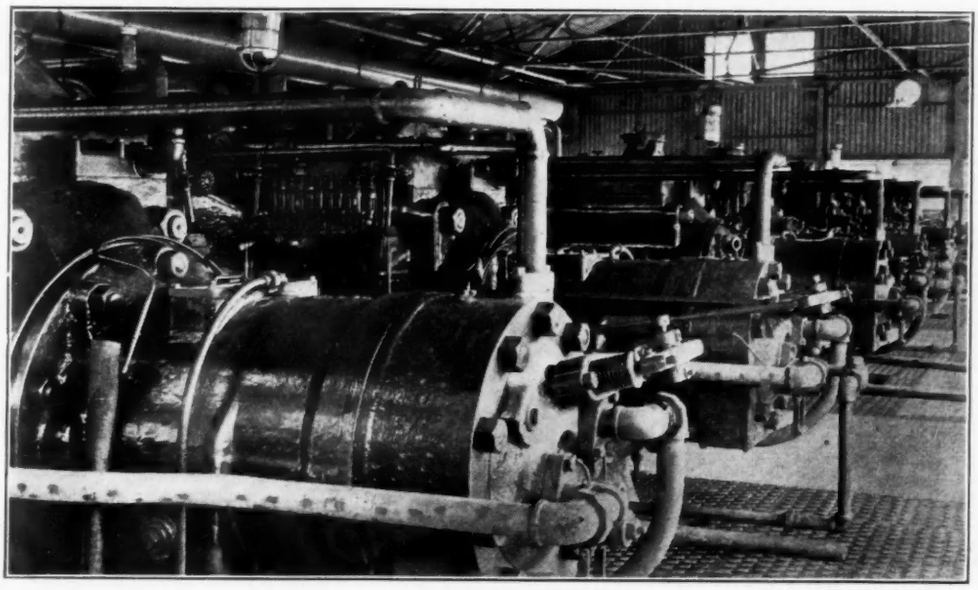
The pressure line leading to the input well is common to both sands until it reaches a point a short distance from the location. Here it was divided running the remaining distance through separate lines. One of the lines was secured to the upper end of the tubing and the other welded to the casing. Adequate control gates were inserted in these lines as well as orifice flanges by which the amount of repressuring medium could be measured and applied as found necessary.

As stated previously, insufficient gas remained available



in the gas producing area to repressure the oil zone. Air was substituted and would have been used had there been sufficient gas for the purpose because of the fact that blowing through of air would make its presence known more decisively. After beginning operations from the old booster station, the stray sand above the first Wier received the air much more rapidly than the producing sand that the returns from the producing wells contained so much air that difficulty was experienced in operating the engines. Also, in a few cases, some of the wells began to show that oil had been forced to this sand from the strata below. Immediately after this was discovered, and because the sand did not contain oil in appreciable quantities, the input wells were reconditioned to prevent the migration of oil or air from the producing sands to this stray. In a few instances, the original casing was removed from the hole and sufficient pipe added in order that it could be landed below the stray sand and seated in the shale break between it and the first Wier. In the majority of cases—and

*Power end of Clark 400 horsepower super gas injection engines.*



*Below—Standard method of connecting flowing well lead lines to separator.*

this proceedure is being followed in all instances now—the original string of casing is not disturbed but a second string of heavy four-inch pipe is run into the hole with a four by 6¼ hook wall packer set in the break between the upper Wier and the stray. Mud is then poured in the hole to fill the annulus between the original string and the four-inch pipe. This filling is done principally to prevent corrosive action of the lower formations from acting on the pipe, and at the same time prevents the migration of water from one formation to the other. The inner string of tubing through which the air is admitted to the lower Wier is left in the original condition as that placed in the beginning of operatons. The well head connections were changed necessarily because of the added string of pipe. The two-inch serving the upper Wier that had been connected to the original casing was removed and inserted through a hole cut in it and welded to the four-inch string. The orifice through which the two-inch extends in the original casing is closed by welding the two-inch to it.

In the cases of old wells utilized for input purposes, which had been shot or the break between the two sands had been mutilated, the four-inch string was placed in the same manner as that in the wells drilled expressly for input. The two-inch tubing was lowered through the break and resting on the bottom of the hole, but with the lower joint perforated a sufficient distance that it covered the thickness of the sand. The shot hole was then filled with creek gravel up to the lower side of the break and cement poured which covered the gravel and sealed the tubing to the shale.

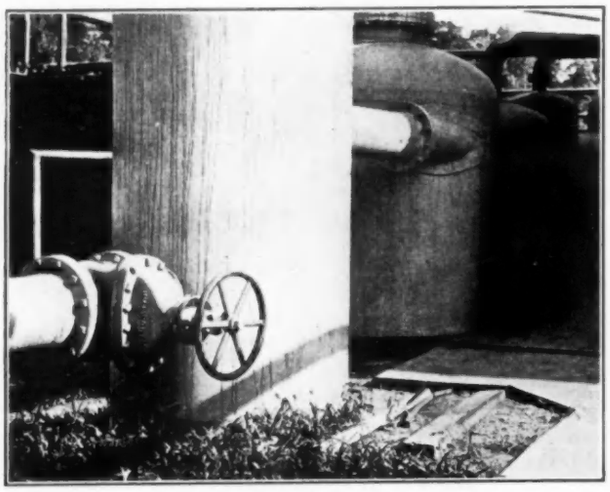
In preparing the wells for pumping, casing was lowered and anchored between the stray sand and the upper Wier in order that one string of tubing could be used in removing the oil. Later, as the wells began to flow due to the pressure applied, the tubing and rods were removed. The tubing with the lower end perforated was re-run into the hole with a two by 6¼ hook wall packer or a burlap packer was placed so that effective sealing could be obtained above the first sand, but excluding the stray. The annular space between the tubing and the casing was then filled with mud to the top of the hole.

A decline curve had been plotted covering the original properties owned and controlled by the company showing the production as of the first of 1927 and extending to the latter part of 1931. This curve showed that the natural pumping production was declining rapidly, and the actual production followed very closely the curve as plotted. When repressuring was begun under the present program, the production line left the curve of the plotted decline at about 1900 barrels. This curve had been plotted to show all the 790 odd wells, and if repressuring had not been applied, the entire recovery would not have exceeded 1000 barrels daily at the present time.

### Four Zones

In September, 1930, the program having been successful, a new modern compressor station was begun. In October, it was placed in operation. As the present program calls for repressuring only about one-half of the existing producing wells, the area was divided into four zones, each being served by a separate pressure line. Four 400 horsepower Clark gas injection engines were set in the foundations with single acting compressor cylinders placed in tandem, two on each side of the twin. These cylinders are

28 by 20-inch on the first stage, 18 by 20-inch, second stage, 12 by 20-inch, third stage and eight by 20-inch on the fourth and final stages of compression. Compressions are as follows; first stage, 0 pounds intake by 20 pounds pressure through scrubbers and Griscom-Russell bentube sections into an accumulator or scrubber tank where the va-



*Intake and discharge scrubber battery in compressor station of Ewiss Oil Corporation, Martha, Kentucky.*

pors are picked up by the second stage compressor cylinder at or near atmospheric temperature. The second stage cylinder compresses the gas/air to 60 pounds and passes it through another scrubber set on the inlet of another battery of cooling sections. From these sections, the gas/air passes through another scrubber and enters the third stage at atmospheric temperature. This cylinder exerts a pressure of 175 pounds while the gas/air is led through a battery of scrubbers and cooling sections as in the other stages of compression. Being admitted to the intake of the fourth cylinder, the gas/air is compressed to 580 pounds and cooled before being released into the lines for distribution to either of the four zones.

A low section of cooling tower was employed to contain the cooling sections, with all the accumulators and scrubbers placed on either side of the tower. These are welded vessels manufactured by Henry Vogt Machine Company. To prevent the mixing of gas with air or vice versa, the discharge line leaving the last accumulator tank extends outward above the four lines leading to the four zones. Lines lead downward to connect to these distributing lines and are connected to the header and lines by welding. In the middle of the risers, two valves are placed flanged to each other, and if the line being connected by this arrangement is not in use, a blind plate is placed between the flanges of the two gates to form a three-stage block to prevent the passage of gas/air to this distributing line.

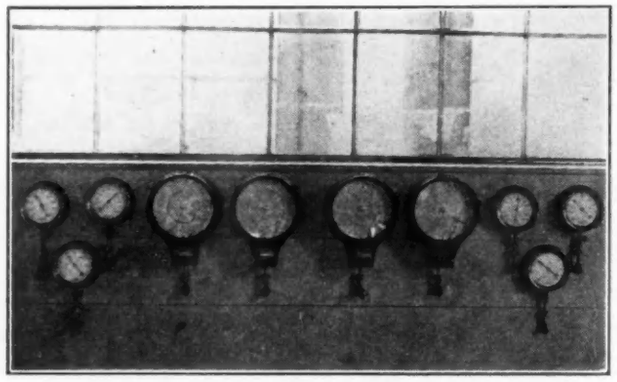
A twenty-four inch common header is utilized in the engine room for a common intake line to the machines handling returned gas from the casing heads and traps in the field. This header is located directly above the intake connection of the first stage compressor and connected to each cylinder by a twelve-inch line; 125 pound Walworth 12-inch valves are installed to control the intake volume to the first cylinder. Between the valve on this header and the intake flange of the compressor there is a Walworth 12-inch flanged tee. From the side outlet of this tee, another 12-inch flanged valve is placed through which the intake may be controlled when operating on air alone as the repressuring medium. The line from this second valve leads out through the side of the building, and is constructed by welding Tube-Turns in the place of ells.

**Safety Devices**

In constructing the compressor station, several safety devices were installed to prevent explosions, superheating and operating without water in the jackets of the power cylinders and compressor cylinders. An ingenious water operated cut-out was installed in the overflow lines leading from the cylinders through the action of which, the magneto is made inoperative immediately upon the failure of water to circulate, and with this apparatus, no machine may be started until after the water has been opened through the cylinders. On the discharge of the fourth stage compressor, a safety plug was installed, having a returning pressure of 1600 pounds. The lines leading from this stage were constructed of 10,000-pound test pipe. A stand-pipe was placed over this plug, leading through the roof of the building, which will carry away the plug or its pieces should pressures reaching that point be placed on the machine. On the scrubber immediately outside the station building, there is placed a thermostat to operate on the magneto if the discharge temperature of the gas/air reaches 280° F.

The compressors are set in a building or steel frame work construction, covered with Johns-Manville corrugated transite. It was found that by having the building finished in this manner the interior was comfortably warm without the application of steam for heating even in the cold weather incidental to that district. Also, having been made practically fireproof with this material, no distortion would be found in the covering even if there should be a conflagration from any cause.

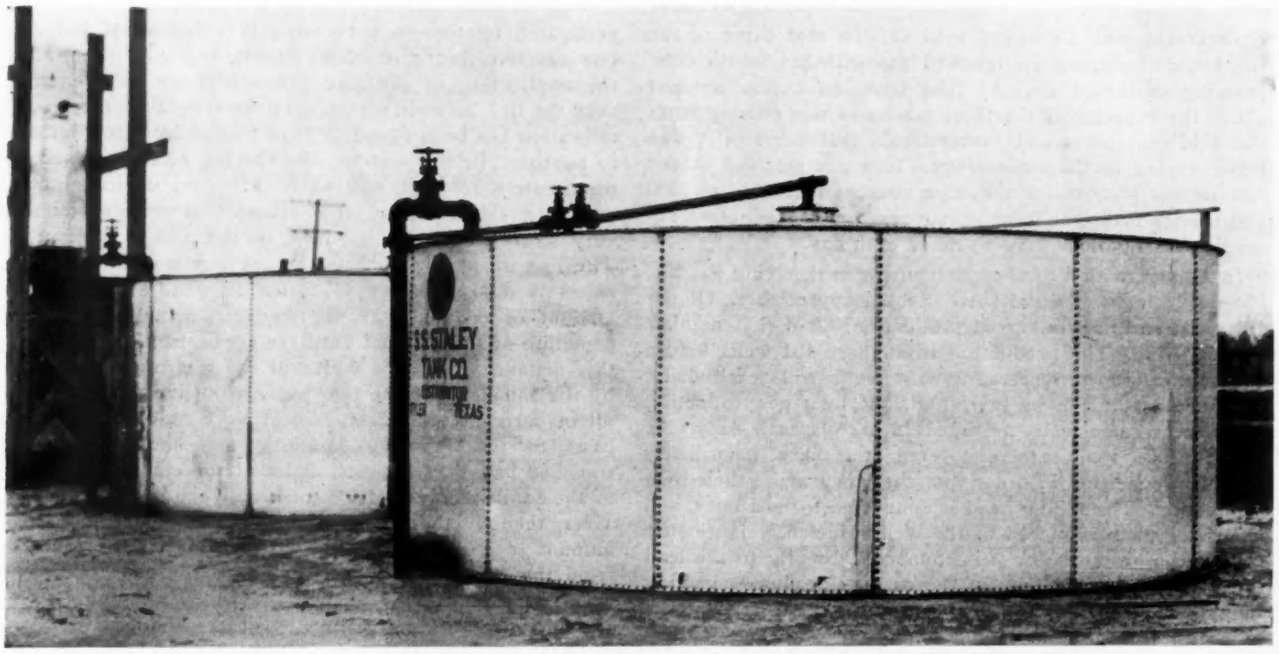
In December, 1931; after the new compressor station had been placed in operation, only enough gas was available to



*Instrument board showing recording and indicating instruments. One board set for each individual twin.*

operate the machines. Consequently the entire four zones were being repressured with air. During that month, a total of 135,527,500 cubic feet was injected into the upper and lower Wier sands. The upper having taken 80,717,100 cubic feet, while the lower had taken only 33,005,700 cubic feet. A daily average of 4,371,800 cubic feet was handled by the compressors, delivering an average of 2,603,700 cubic feet to the first, and 1,064,700 cubic feet to the second Wier sand. An average well head pressure of 570 pounds was recorded, with an input of 104,100 cubic feet per input well to the first sand, and 44,300 cubic feet to the second.

By March, 1931, the total air injection was 89,548,200 cubic feet, with enough returning gas from the repressured zones to permit an injection of 43,972,800 cubic feet. By June, 1931, the gas had been regenerated by carburetting the air to such an extent that only 65,997,000 cubic feet of air was used, while the gas returned amounted to 27,731,000 cubic feet. In August, the gas had so increased by virtue of




Two 500-Bbl. Low Type Maloneys used by F. W. Martin & Co., at Kilgore Townsite Well, Kilgore, Texas.
Erected by S. S. Staley Tank Co., Distributers, Tyler, Texas.

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replacement with air mixed with vapors, that three of the twins were operating on returned gas with the fourth compressing undiluted air. At that time, an excess amount above the capacity of the three machines was coming from the field separators and casing heads that some of it was being vented to the atmosphere. This gas received at the compressor station has a B. t. u. content in excess of 1000 and carries sufficient gasoline vapors that a production exceeding 2000 gallons may be made each day.

In August, with a total of 29 input wells receiving gas/air, 101 producing wells had been affected appreciably. Of the 101 wells showing increased production, 47 of that number were flowing. The production from these 101 wells before the application of repressure was five barrels each daily, and in a test made in July, 1931, the average production from these same wells averaged 15 barrels each daily. As the flowing wells are discovered, they are immediately placed in condition in order that they may make their own production. The tubing head is connected to lead lines, and an orifice plate is placed at the well sufficiently large that oil may be produced, or it is connected directly to the lead lines with control gates. In the case of producers making their own production, an additional orifice is placed at the separator that permits only a small amount of gas and oil to flow through it. These orifices have been selected for the individual wells, and sufficient back pressure is maintained at all times to prevent channelling of the gas. In the case of wells which are operated by manual control, the lease man visits them at stated intervals, opens wide the gates through which the well may flow its head off in a few minutes. After the load of oil has been produced, the well is shut in again until the next visit of the pumper.

In all cases the lead lines are led to the lease battery separators placed above or near the flow tanks. As the ground is very rough, these separators in practically all cases may be placed above the level of the tanks. Fisher Flowats are attached to the separators to provide an automatic outlet for the oil from the separator to the flow tank. A common line leads from the control valve in the Fisher assembly to a header above the tank battery in order that their tanks may be filled as the production warrants or as the lease foreman designates. A return gas line leads from the top of the separator to the common gathering system leading back to the compressor station. All lease tanks are fitted with A. Y. McDonald gas vents and thief hatches.

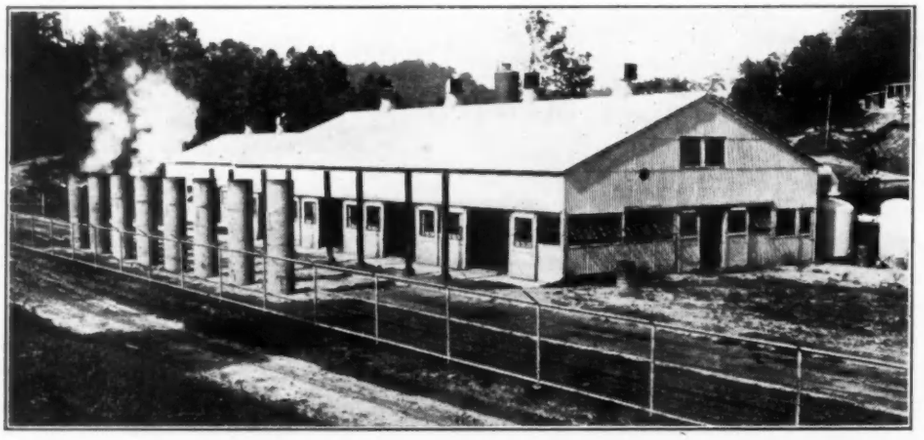
After the new compressor station was placed in operation, the pressures having been available to secure results, migration of oil from the producing zone to some of the edge gas wells was noted. Several methods have been investigated relative to preventing this migration, but only one effective means has been found; that of discontinuing the application of pressure through those wells situated near the line between oil and gas. In several instances, this migration has been found to have moved from one location to another. In this district, the spacing of the wells is approximately 300 feet, and wells that were drilled showing gas only, this distance from others that only produced a very small amount of oil, have been found to contain oil. The line of separation between the gas and oil producing zones is approximately 4½ miles long. To compute the amount of oil that has migrated since the beginning of depletion of the gas and until the application of repressure, this distance times the width of the migration, multiplied by the thickness of the two sands will give the amount of oil in barrels if the 20 per cent pore space is used as a basis for calculations. Assuming that the oil has only travelled half that distance, and that the effective thickness of the sand is only 50 feet, combining the upper and lower Wier, then by these calculations it may be found that an amount in excess of 7,000,000 barrels of oil has travelled from the original place of deposit to the gas zone. This great amount of oil, the bulk of which is gone forever, should cause an investigation by other producers when relieving a heavily saturated gas zone backed up by oil.

As the area has been placed on restristed production, the full benefits of the project cannot be realized. Of the 83 farms producing oil, 40 are being pumped daily except Sunday. The remaining 43 farms are pumped every other day except Sunday. However, the entire property has been zoned for repressure, and enough connections were provided in the compressor yard that its size may be doubled in order that the entire property may be placed under pressure.

At present the original and added properties of the company are producing an average of 2100 barrels of oil daily, but on a test—run to determine the actual producing potential of the property as a whole—it stored above 4700 barrels of pipe line oil in one day. If it had not been placed on repressure, the decline curve indicates that the production from pumping alone would not have exceeded 1200 barrels.

An outlet is available for this production by transporting the oil from these holdings to two refineries, subsidiary companies of Swiss Oil Corporation. One is located at Ashland, Kentucky, known as Ashland Refining Company, while the other, Tri-State Refining Company, is located at Kenova, West Virginia.

Acknowledgment for the assistance in preparation of this article is given the field men of Swiss Oil Corporation for their courtesy in extending all assistance, and to Dunn & Lewis for the data from which the article is compiled.



*Swiss Oil Corporation's Compressor Station*

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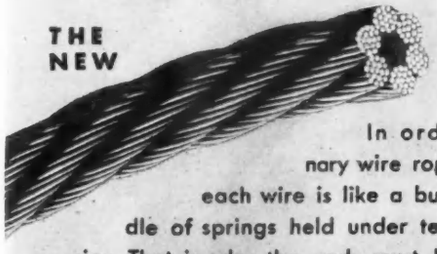


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# Markets • Production • Crude Prices

**H. J. STRUTH,** ***Staff Economist, Houston, Texas***

## Production Continues Downward; Oklahoma Demand Improves

Crude oil production continued its downward trend last week, with a further decline in daily average of the United States of 30,250 barrels. Total daily average of the country now stands at 2,108,050 barrels, as compared with a peak since the lifting of martial law of about 2,460,000 barrels. The principal cause of last week's further substantial decrease in production is revealed by a sharp drop in output of the East Texas field. There, the daily average had declined about 48,000 barrels a day, to a total of only 279,050 barrels a day. This brought the daily average production for Texas down to 797,400 barrels, against an indicated prorata allowable for the state of about 818,000 barrels a day. Furthermore, there was also a substantial drop in production of the Eastern States, where the daily average declined 4850 barrels.

While there was an increase in production of Oklahoma of 9250 barrels a day, it was apparent also that there was marked improvement in the market demand for Oklahoma crude. In fact, a report of the storage situation in Oklahoma and Kansas indicates that stocks only increased about 800 barrels a day, whereas on the basis of cumulative average demand last week's rate of production would have resulted in an excess of about 39,000 barrels. In fact, last week's figures of current supply and demand indicate that takings from Oklahoma fields closely approximated actual production.

The improvement in demand for Oklahoma crude has undoubtedly been due to local requirements of refineries rather than to an increase in shipments out of the state. In this section last week it was pointed out that refinery runs in Oklahoma and Kansas were about 23,000 barrels a day below the indicated throughput required to meet the current demand for gasoline. Subsequent reports indicated a further drop in the daily rate of refinery throughput, which was followed by an increase last week, supporting the foregoing conclusion. If the increase in still runs is justified by improved demand for gasoline, it is probable that last week's rate of crude consumption from Oklahoma fields will prove to have been of more than passing market significance.

### East Texas

While the situation in East Texas appears to have developed further complications, as a result of impending injunction proceedings against martial law, it is not believed that the granting of such an injunction will have any material effect upon the immediate supply situation. Except for a few operators, the concensus of opinion among East Texas operators favors a continuation of curtailment along present lines. There seems to be unanimous agreement on the principles advocated by the Texas Railroad Commission and by experts who have testified as to the advisability of preventing the dissipation of pressures. It is also realized by most operators there that present prices can only be maintained by holding production within current market requirements, or less. It is apparent, therefore, that East Texas will continue to be operated along conservative lines for some time to come and will probably not revert to its former threatening status. Announcement of abandonment of the Sunday shut-down schedule by a majority of the companies operating in the East Texas area will probably have little effect upon production, since most companies have issued orders to produce wells at a rate not to exceed 65 barrels a day on a seven-day basis. Magnolia Petroleum Company made announcements of the resumption of operations on a seven-day basis, effective Sunday, February 21. Practically all major operators are producing wells at a rate of 65 barrels a day.

The return to a seven-day basis in East Texas will result in a slight increase in production from existing wells, the average previously amounted to about 64 barrels per well per day. Operation of all wells on Sundays, with a considerable number of operators producing the allotted 75 barrels per well for seven days and the balance producing 65 barrels, will undoubtedly boost production somewhat. If the well average increases to, say, 70 barrels a day the daily average of the field would still be less than 300,000 barrels a day. The total number of producing wells in the East Texas area last week numbered 4194; new wells completed during the week amounted to 86 producers.

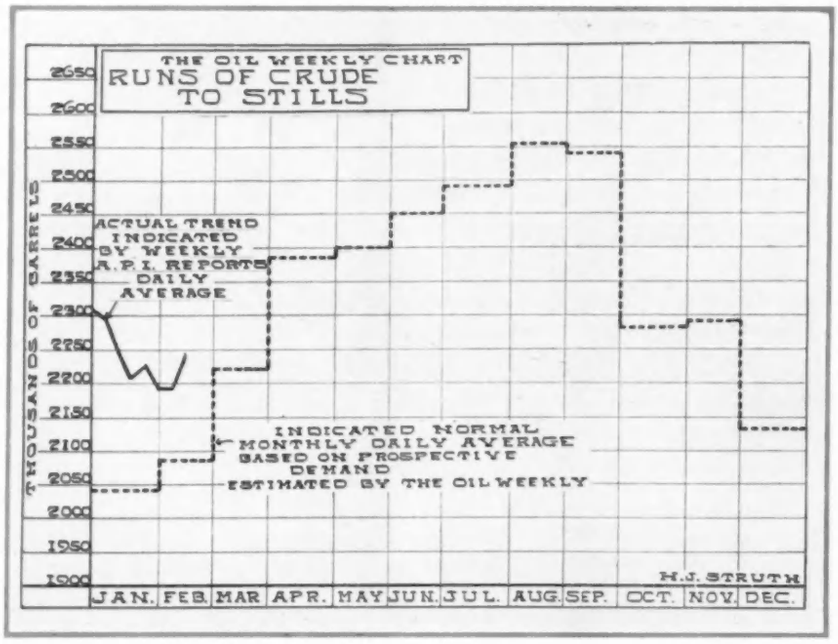
## California Output Continues Too High, Endangering Price

With production in California exceeding the demand by a good figure, some concern is felt regarding means of forcing the output to a lower daily average. Production remains at about 500,000 barrels, against an allowable of 456,700 barrels, and warnings that the excess will lead to trouble have been ignored by many. The announcement several months ago that an output of 500,000 barrels or more was out of line with future demands was met doubtfully for a while, but time has borne out the claims of the special committee. Actual requirements during December and January were not above 475,000 barrels, according to unofficial figures released. This left a substantial surplus. Immediate spring demands do not look much higher.

Enactment of the Sharkey bill will solve many problems, supporters of the measure claim, but opponents to the proposed law insist that its passage will place the state in control of the industry. The measure would regulate production and is a statutory formula providing for production allocation among fields, zones, properties and wells. It is claimed that the bill will give industrial self-control.

A plan to unitize the Middle Dome at Kettleman Hills is an important step. This part of the field is not yet productive, but it soon will be.

Few premiums are being paid for crude in most fields and sales below the current quotations have been reported. The advent of low price gasoline makes it necessary to use




the least expensive charging stock possible. Long Beach and Santa Fe Springs crudes are not in as keen demand as during the fall months.

The decline in offshore shipments has been a source of worry, and the immediate future seems to hold limited promise of an increase.

The spread of third grade gasoline has affected both the crude and refined markets, but the effect may not be permanent. Gasoline has dropped to 9½ cents in the Los Angeles district, with all majors selling the cheap product. Further reductions by the independents will be met by the major marketers. With this thought in mind, higher gasoline prices are possible.

## Improved Refinery Demand Offsets Mid-Continent Production Increase

Despite the fact that daily production in Kansas and Oklahoma was up approximately 9000 barrels daily during the week ending Saturday, February 20, daily net movement to storage dropped from 4900 barrels to only 800 barrels. All of the increased production was from the Seminole district, Oklahoma City and Kansas remaining about the same as during the preceding week. Weather conditions throughout the Middle West and Mid-Continent areas remained generally bad and the market situation had shown no ap-

## Crude Runs to Stills, Gasoline Stocks and Gas and Fuel Oil Stocks

Report for Week Ending February 13, 1932

(Figures in Barrels of 42 gallons each)

| District— | Potential Capacity (Daily) Total | Reporting | Per Cent | Crude Runs to Stills Total | Daily Average | Per c't Operated | Gasoline Stocks (see note below) | Gas & Fuel Oil Stocks |
|---|---|---|---|---|---|---|---|---|
| East Coast | 633,700 | 633,700 | 100.0 | 2,975,000 | 425,000 | 67.1 | 5,676,000 | 7,110,000 |
| Appalachian | 149,600 | 137,400 | 91.8 | 673,000 | 96,100 | 69.9 | 1,765,000 | 1,314,000 |
| Indiana, Illinois, Kentucky | 436,300 | 431,500 | 98.9 | 1,932,000 | 276,000 | 64.0 | 5,329,000 | 4,818,000 |
| Oklahoma, Kansas, Missouri | 485,700 | 435,200 | 89.6 | 1,515,000 | 216,400 | 49.7 | 3,855,000 | 3,338,000 |
| Texas | 838,200 | 765,400 | 91.3 | 3,408,000 | 486,900 | 63.6 | 9,402,000 | 10,656,000 |
| Louisiana-Arkansas | 233,100 | 230,500 | 98.9 | 1,062,000 | 151,700 | 65.8 | 1,357,000 | 4,100,000 |
| Rocky Mountain | 160,900 | 143,800 | 89.4 | 232,000 | 33,200 | 23.1 | 1,982,000 | 721,000 |
| California | 914,500 | 888,100 | 97.1 | 3,105,000 | 443,600 | 49.9 | 14,064,000 | 96,168,000 |
| Total February 13 | 3,852,000 | 3,665,600 | 95.2 | 14,902,000 | 2,128,900 | 58.1 | 43,430,000 | 128,225,000 |
| Total February 6 | 3,852,000 | 3,665,600 | 95.2 | 14,783,000 | 2,111,900 | 57.6 | 41,376,000 | 128,705,000 |
| Total February 14, 1931 | 3,730,100 | 3,571,200 | 95.7 | 15,479,000 | 2,211,300 | 61.9 | *41,986,000 | 130,316,000 |
| **The Texas and Louisiana Gulf Coastal figures shown below included above in the totals of their respective districts.** | | | | | | | | |
| Texas Gulf Coast | 532,500 | 531,500 | 99.8 | 2,537,000 | 362,400 | 68.2 | 7,505,000 | 7,861,000 |
| Louisiana Gulf Coast | 147,500 | 147,500 | 100.0 | 742,000 | 106,000 | 71.9 | 1,193,000 | 3,282,000 |

Note: Stocks at refineries, except in California district, which includes stocks of finished gasoline and engine distillate at refineries, water terminals and sales distributing stations and amounts in transit thereto.

* This figure is not entirely comparable with current stocks due to revisions made since original publication of this figure, for which revisions the basic information is not available by weeks. If it were possible to have made the revision, the new figure would reflect somewhat lower stocks.

## HOW LAST WEEK'S DAILY AVERAGE PRODUCTION COMPARES WITH ALLOWABLE QUOTAS AND CURRENT DEMAND

| State— | Allowable or Economic Limit | Indicated Current Demand | Daily Average Last Week | Added to or Withdrawn from Storage (Estimated) | Daily Average Since Jan. 1 | Indicated Excess or Shortage Since Jan. 1 (Cumulative) |
|---|---|---|---|---|---|---|
| Arkansas | 38,000[1] | 43,000 | 33,500 | —9,500 | 33,967 | —460,650 |
| California | 456,000[2] | 465,000 | 507,300 | +42,300 | 505,039 | +2,042,000 |
| Kansas | 90,000[1] | 92,000 | 99,300 | +7,300 | 99,142 | +364,250 |
| Louisiana | 54,000[1] | 63,000 | 56,100 | —6,900 | 57,198 | —295,900 |
| Oklahoma | 410,000[3] | 375,000 | 414,150 | +39,150 | 426,004 | +160,500 |
| Texas | 818,000[1] | 840,000 | 797,400 | —42,600 | 841,662 | +84,300 |
| Balance of U. S. | 202,000[1] | 206,000 | 200,300 | —5,700 | 204,387 | —22,150 |
| Total | 2,068,000 | 2,084,000 | 2,108,050 | +24,050 | 2,167,399 | +1,872,350 |

[1]Economic Limit Based on Data Compiled by The Oil Weekly.
[2]Allowable set by California Proration Committee.
[3]Allowable set by Oklahoma Corporation Commission.

preciable change over the week preceeding. Signs of increased stability in the major pools of the United States plus a tendency of refiners to hold crude runs to stills to a low percentage of capacity pointed toward a more stable condition of the market structure but no uptrend is being expected until seasonal changes bring increased consumption. The fact that gallonage has dropped off considerably during the past few weeks with no appreciable sag in the general price structure encourages marketers in general to believe that better times are not far away although buying during the next month or six weeks probably will be on an "over-night" scale.

It is being rumored that when the Oil States Advisory Committee meets next month in Tulsa, the representatives from Kansas will ask that daily allowable production for that state be increased from the present allowable of 110,000 to 130,000 barrels, that Oklahoma be given a daily allowable of 450,000 barrels and Texas 750,000 barrels. Oklahoma and Kansas oil men, with the picture of the expensive Oklahoma City pool and the extensive development which has

## Cracked Gasoline Production

Report for Week Ending February 13, 1932

(Barrels of 42 gallons)

| | Potential Charging Capacity Total | Daily Reporting | % | Production Total | Daily Average |
|---|---|---|---|---|---|
| East Coast | 261,300 | 236,300 | 94.0 | 639,000 | 91,300 |
| Appalachian | 56,300 | 54,100 | 96.1 | 197,000 | 28,100 |
| Ind., Ill., Ky. | 330,400 | 315,400 | 95.5 | 546,000 | 78,000 |
| Okla., Kans., Mo. | 237,800 | 219,500 | 92.3 | 337,000 | 48,200 |
| Texas | 450,800 | 436,200 | 96.8 | 866,000 | 123,700 |
| Louisiana-Arkansas | 112,400 | 112,400 | 100.0 | 211,000 | 30,100 |
| Rocky Mountain | 99,900 | 98,400 | 98.5 | 78,000 | 11,200 |
| California | 190,800 | 190,800 | 100.0 | 322,000 | 46,000 |
| Total Feb. 13 | 1,739,700 | 1,663,100 | 95.6 | 3,196,000 | 456,600 |
| Total Feb. 6 | 1,739,700 | 1,663,100 | 95.6 | 3,029,000 | 432,700 |
| Total Feb. 14, 1931 | 1,589,600 | 1,495,200 | 94.1 | 2,836,000 | 405,100 |
| The Texas and Louisiana Gulf Coastal figures shown below are included above in the totals of their respective districts. | | | | | |
| Texas Gulf Coast | 352,400 | 347,400 | 98.6 | 723,000 | 103,300 |
| La. Gulf Coast | 77,000 | 77,000 | 100.0 | 150,000 | 21,400 |

## Imports of Petroleum

(Barrels of 42 gallons)

| | Week Ended Feb. 13 | Week Ended Feb. 6 |
|---|---|---|
| AT ATLANTIC COAST PORTS— | | |
| Baltimore | 359,000 | 118,000 |
| Boston | 62,000 | 104,000 |
| New York | 584,000 | [1]671,000 |
| Philadelphia | 155,000 | 278,000 |
| Others | 167,000 | [1]188,000 |
| Total | 1,327,000 | 1,359,000 |
| Daily Average | 189,571 | 194,143 |
| AT GULF COAST PORTS— | | |
| Galveston District | ..... | ..... |
| New Orleans and Baton Rouge | 21,000 | ..... |
| Port Arthur and Sabine District | ..... | ..... |
| Tampa | ..... | ..... |
| Total | 21,000 | ..... |
| Daily Average | 3,000 | ..... |
| AT ALL UNITED STATES PORTS— | | |
| Total | 1,348,000 | 1,359,000 |
| Daily Average | 192,571 | 194,143 |
| Daily Average Four Weeks Ended | 214,643 | 217,857 |
| Distribution of Total Imports is as follows: | | |
| Crude | 683,000 | [1]791,000 |
| Gasoline | 373,000 | [1]248,000 |
| Kerosene | 4,000 | ..... |
| Fuel Oil | 288,000 | [1]320,000 |
| Total | 1,348,000 | 1,359,000 |

[1] Revised.

## California Oil Receipts

(Barrels of 42 gallons)

| | Week Ended Feb. 13 | Week Ended Feb. 6 |
|---|---|---|
| AT ATLANTIC COAST PORTS— | | |
| Baltimore | ..... | ..... |
| Boston | ..... | ..... |
| New York | 57,000 | ..... |
| Philadelphia | ..... | ..... |
| Others | ..... | 25,000 |
| Total | 57,000 | 25,000 |
| Daily Average | 8,143 | 3,571 |
| AT GULF COAST PORTS— | | |
| Total | ..... | ..... |
| Daily Average | ..... | ..... |
| AT ATLANTIC AND GULF COAST PORTS— | | |
| Total | 57,000 | 25,000 |
| Daily Average | 8,143 | 3,571 |
| Daily Average Four Weeks Ended | 23,429 | 24,786 |
| Distribution of Total California Oil Receipts is as follows: | | |
| AT ATLANTIC COAST PORTS— | | |
| Gasoline | 57,000 | 25,000 |
| Total | 57,000 | 25,000 |

## United States Daily Average Production

| 1930 | Oklahoma | Kansas | Texas (Outside Gulf Coast) | Gulf Coast | North Louisiana | Arkansas | Eastern States | Rocky Mountain | California | United States Daily Av. | United States Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| August | 558,850 | 115,650 | 646,400 | 206,600 | 41,500 | 55,100 | 128,550 | 106,000 | 611,250 | 2,470,900 | 76,597,600 |
| September | 558,900 | 116,550 | 606,550 | 200,750 | 40,150 | 53,550 | 121,400 | 110,650 | 604,900 | 2,413,400 | 72,402,205 |
| October | 542,100 | 114,850 | 609,500 | 194,850 | 41,500 | 52,800 | 121,750 | 104,000 | 590,800 | 2,372,150 | 73,536,350 |
| November | 491,550 | 111,400 | 579,350 | 190,100 | 44,050 | 52,000 | 116,400 | 101,950 | 601,200 | 2,288,000 | 68,639,150 |
| December | 459,300 | 105,550 | 533,400 | 189,300 | 43,000 | 51,100 | 112,200 | 100,500 | 587,450 | 2,181,800 | 67,636,500 |
| 1931 | | | | | | | | | | | |
| January | 452,000 | 106,350 | 511,050 | 188,850 | 41,100 | 50,700 | 110,300 | 96,700 | 535,700 | 2,092,750 | 64,874,450 |
| February | 473,750 | 114,450 | 523,700 | 185,600 | 43,950 | 49,950 | 109,800 | 100,100 | 527,300 | 2,128,600 | 59,600,450 |
| March | 531,900 | 110,550 | 585,000 | 177,950 | 40,250 | 47,550 | 108,800 | 95,400 | 528,100 | 2,225,500 | 68,990,850 |
| April | 543,650 | 109,250 | 723,050 | 185,850 | 39,050 | 47,000 | 111,500 | 95,500 | 527,350 | 3,382,200 | 71,465,750 |
| May | 561,950 | 107,400 | 767,200 | 185,950 | 39,200 | 46,650 | 111,250 | 97,500 | 534,150 | 2,451,250 | 75,975,950 |
| June | 556,850 | 103,150 | 828,250 | 170,100 | 36,500 | 44,900 | 108,950 | 97,950 | 520,300 | 2,466,950 | 74,009,750 |
| July | 527,950 | 100,000 | 912,250 | 157,850 | 33,650 | 41,400 | 107,600 | 94,400 | 517,900 | 2,493,000 | 77,282,700 |
| August | 306,150 | 101,900 | 976,800 | 153,550 | 30,400 | 37,650 | 109,600 | 92,900 | 510,900 | 2,319,050 | 71,890,200 |
| September | 261,050 | 104,600 | 752,250 | 149,950 | 29,600 | 38,000 | 117,400 | 92,250 | 505,550 | 2,050,650 | 61,518,950 |
| October | 423,600 | 103,950 | 865,800 | 153,500 | 29,200 | 37,750 | 121,600 | 93,950 | 503,800 | 2,333,150 | 72,327,750 |
| November | 541,250 | 104,750 | 855,550 | 158,850 | 29,300 | 37,650 | 124,300 | 93,950 | 503,050 | 2,448,650 | 73,460,150 |
| December | 534,650 | 105,500 | 795,500 | 153,550 | 27,850 | 35,100 | 124,500 | 92,150 | 503,000 | 2,371,800 | 72,525,700 |
| January | 439,250 | 99,400 | 735,450 | 141,050 | 28,850 | 34,250 | 123,050 | 82,800 | 505,900 | 2,190,000 | 67,890,550 |
| Feb. 6 | 396,100 | 98,050 | 750,950 | 144,300 | 28,350 | 33,500 | 120,350 | 81,400 | 499,700 | 2,152,700 | 15,068,900 |
| February 20 | 414,150 | 99,300 | 683,700 | 141,300 | 28,500 | 33,500 | 116,050 | 84,250 | 507,300 | 2,108,050 | 14,756,350 |
| February 13 | 404,900 | 98,850 | 725,100 | 140,200 | 28,700 | 33,550 | 120,900 | 82,600 | 503,500 | 2,138,300 | 14,968,100 |
| Increase | 9,250 | 450 | ..... | 1,100 | ..... | ..... | ..... | 1,650 | 3,800 | ..... | ..... |
| Decrease | ..... | ..... | 41,400 | ..... | 200 | 50 | 4,850 | ..... | ..... | 30,250 | 211,750 |

## Last Week's Daily Average Production by Districts

| TEXAS | For Week Ending Feb. 20 | Previous Week |
|---|---|---|
| Panhandle | 49,400 | 48,800 |
| North Texas | 48,350 | 48,400 |
| West Central Texas | 23,700 | 23,950 |
| West Texas | 175,950 | 173,250 |
| East Central Texas | 55,250 | 50,300 |
| East Texas | 279,050 | 327,500 |
| Southwest Texas | 52,000 | 52,900 |
| Texas Gulf Coast | 113,700 | 111,900 |
| TOTAL TEXAS | 797,400 | 837,000 |
| OKLAHOMA | 414,150 | 404,900 |
| CALIFORNIA | 507,300 | 503,500 |
| KANSAS | 99,300 | 98,850 |

*Includes Michigan.

| LOUISIANA | For Week Ending Feb 20 | Previous Week |
|---|---|---|
| North Louisiana | 28,500 | 28,700 |
| Louisiana Gulf Coast | 27,600 | 28,300 |
| TOTAL LOUISIANA | 56,100 | 57,000 |
| Arkansas | 33,500 | 33,550 |
| MOUNTAIN STATES | | |
| Wyoming | 35,850 | 34,350 |
| Montana | 7,250 | 7,050 |
| Colorado | 3,550 | 3,600 |
| New Mexico | 37,600 | 37,600 |
| TOTAL MOUNTAIN STATES | 84,250 | 82,600 |
| *Eastern States | 116,050 | 120,900 |
| TOTAL UNITED STATES | 2,108,050 | 2,138,300 |

## Summarized Review of Field Results

| State— | Completions This week | Completions Last week | Oil Wells This week | Oil Wells Last week | Gas Wells This week | Gas Wells Last week | Failures This week | Failures Last week | Initial Prod. This week | Initial Prod. Last week |
|---|---|---|---|---|---|---|---|---|---|---|
| Arkansas | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| California | 1 | 4 | 1 | 4 | 0 | 0 | 0 | 0 | 500 | 2,550 |
| Illinois | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Indiana | 5 | 1 | 1 | 0 | 1 | 1 | 3 | 0 | 105 | 0 |
| Kansas | 7 | 12 | 2 | 8 | 0 | 0 | 5 | 4 | 150 | 12,380 |
| Kentucky | 6 | 13 | 2 | 12 | 1 | 0 | 3 | 1 | 195 | 985 |
| Louisiana | 11 | 3 | 5 | 2 | 1 | 0 | 5 | 1 | 1,809 | 1,875 |
| Michigan | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Mississippi | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| New Mexico | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 14,750 |
| New York | 12 | 11 | 11 | 10 | 0 | 1 | 1 | 0 | 31 | 125 |
| Ohio | 13 | 13 | 4 | 0 | 5 | 8 | 4 | 5 | 115 | 0 |
| Oklahoma | 17 | 15 | 5 | 9 | 7 | 2 | 5 | 4 | 12,142 | 18,435 |
| Pennsylvania | 25 | 26 | 18 | 19 | 5 | 6 | 2 | 1 | 64 | 86 |
| Texas | 149 | 117 | 112 | 93 | 2 | 3 | 35 | 21 | 816,410 | 707,099 |
| West Virginia | 4 | 14 | 0 | 1 | 4 | 9 | 0 | 4 | 0 | 33 |
| Total | 255 | 231 | 161 | 159 | 28 | 30 | 66 | 42 | 831,521 | 758,318 |
| Increase | 24 | | 2 | | .. | | 24 | | 73,203 | |
| Decrease | .. | | .. | | 2 | | .. | | .... | |

## Comparison of Permits Granted for New Wells

| | For Week Ending Feb. 20 | Previous Week | This Week 1931 | Total This Month | This Month 1931 | Total This Year | Total This Date Last Year | 1931 Year Total |
|---|---|---|---|---|---|---|---|---|
| Arkansas | 0 | 0 | 4 | 0 | 8 | 1 | 12 | 34 |
| California | 4 | 3 | 8 | 13 | 27 | 33 | 48 | 342 |
| Louisiana | 8 | 3 | 7 | 19 | 23 | 60 | 61 | 309 |
| Kansas | 13 | 6 | 11 | 25 | 49 | 70 | 89 | 475 |
| Oklahoma | 21 | 15 | 34 | 45 | 85 | 111 | 191 | 842 |
| Texas | 109 | 164 | 97 | 417 | 233 | 825 | 630 | 6,961 |
| Total | 155 | 191 | 161 | 519 | 425 | 1,100 | 1,031 | 8,963 |

been necessary to discover the present Kansas potential, cannot become reconciled to the action of the last Oil States Advisory meeting when Texas was allocated almost as much production as the total for Kansas, Oklahoma and California.

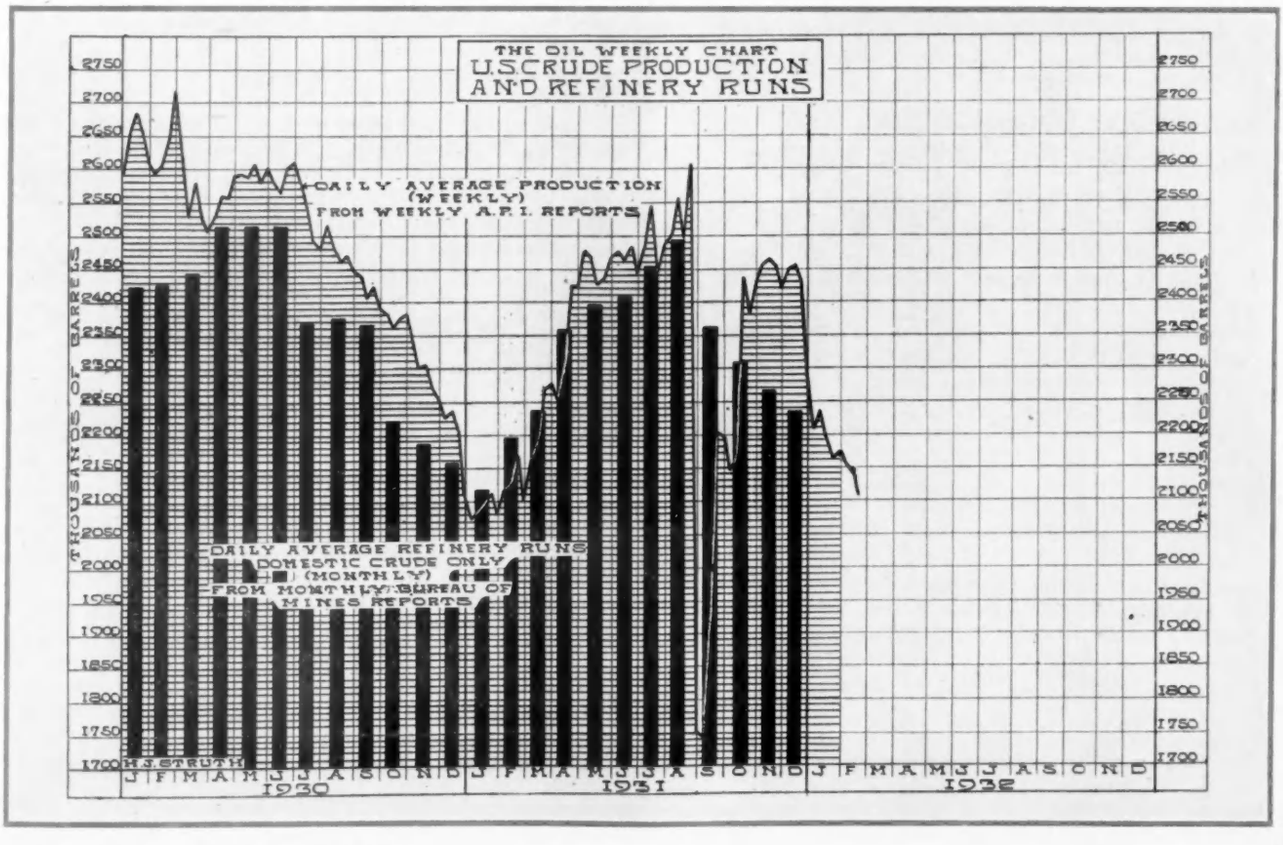
## Collins Replaces Committee As Umpire at Oklahoma City

Oklahoma City.—Ray M. Collins was appointed umpire of the Oklahoma City pool following a meeting of the Oklahoma Corporation Commission on Thursday, February 18. Action of the commission was based on a petition of 27 independent operators who asked that the proration committee of three be dismissed and Collins named as successor. In accepting the resignations of the committee of three the commission expressed appreciation for the services rendered by that committee through a period when proration was having its greatest difficulties and stated that each of the men had been appointed exclusively upon the initiative of the commission and the acceptances had been made reluctantly.

Collins has been state proration umpire since August 7, 1927, and was recently appointed pipe line umpire for the Oklahoma City pool. According to an announcement made at the end of the week, no major changes are anticipated in the proration regulations other than a concerted drive to do away with the under-production problem and to secure equitable taking of oil in the pool. The proration committee of three, which took over control of the Oklahoma City pool upon the resignation of Otto Bradford last November, was composed of W. N. Stokes, T. B. Slick interests, and chairman of the committee; C. O. Rison, Oklahoma City district superintendent for Indian Territory Illuminating Oil Company; and B. G. Patton, president of Plains Petroleum Company. Patton was one of the 27 operators who signed the petition asking for the appointment of Collins.

## Will Make New Potentials For Two Fields in Kansas

Wichita, Kansas.—The Kansas Public Service Commission, in its regular bi-weekly meeting held in Wichita on Friday, February 19, decided that new potentials will be taken on both chat horizon and Viola limestone wells in the Ritz-Decker-Garrett area in McPherson County. Following the formal session, operators held a short meeting and voted to take 12-hour gauges on chat wells, the minimum to be 100 barrels per well and Viola lime wells will be pumped the same number of hours, with the minimum set at 50 barrels per well. The question of whether potentials will be based on 2½- or three-inch tubing was undecided but it is believed that the former size will be favored by the commission. All potentials will be taken in the same manner as the wells are normally produced. In a proration report issued February 6, 1932, by state umpire Lloyd Pickrell, the estimated potential of the area was 115,223 barrels, of which 42,926 barrels were allocated to properties producing from the chat horizon and 72,297 barrels to Viola lime wells. Pickrell is said to have estimated that the new potential, which will be taken between March 1 and 10, will not exceed 70,000 barrels.


THE OIL WEEKLY CHART
U.S. CRUDE PRODUCTION AND REFINERY RUNS
DAILY AVERAGE PRODUCTION (WEEKLY) FROM WEEKLY A.P.I. REPORTS
DAILY AVERAGE REFINERY RUNS DOMESTIC CRUDE ONLY (MONTHLY) FROM MONTHLY BUREAU OF MINES REPORTS
THOUSANDS OF BARRELS
H.J. STRUTH
1930
1931
1932

## Congress Bombarded With Telegrams And Letters Opposing Gasoline Tax

New York.—Thousands of telegrams have gone to congress this week to the effect that the public and the petroleum industry are opposed to the suggested federal gasoline tax.

February 25 was observed throughout the industry as "Gasoline Tax Day," thirteenth anniversary of the imposition of the first gasoline tax in the United States. On that date, back in 1919, Oregon began collecting a penny on every gallon of gasoline sold in the state, planning to use the revenue to finance good roads.

American Petroleum Institute took advantage of the occasion to request marketers and consumers of gasoline to make a personal protest to their representatives in congress against the proposed tax. Marketers were asked to request dealers, agents, and customers to take similar steps. State officials were invited to take this action to protect a source of state revenue that would be jeopardized by the federal tax. Motorists and their organizations were urged to contribute in an effort to avoid the double taxation.

Accompanying the Institute's appeal to the industry for action was a reprint from the February 12 issue of the "Oil Weekly," an editorial stating that "only an aroused public can kill the federal gasoline tax," and explaining that this legislation can be killed not by appeals before a committee but by forcing congress to hear "the voice from the precincts."

Latest indications are that congress plans to levy both the manufacturers' tax and the gasoline tax. This would mean that a manufacturers' tax of one or two cents would be imposed upon gasoline, which would be forced to bear also the additional burden of a one cent per gallon tax, in effect a second manufacturers' tax, but in this case 25 per cent, or one-fourth the refinery price of four cents per gallon. State gasoline taxes of two cents to seven cents a gallon, and county and community taxes, ranging as high as three cents per gallon, would be continued.

## Yates Field Litigation Suit Is Decided in Favor of State Et Al

Austin, Texas.—Litigation involving the ownership of approximately 2468 acres of land, including a portion of the most prolific section of Yates field, West Texas, ended favorably for the State of Texas and about 150 co-defendants when Judge C. A. Wheeler of Travis County District Court ruled that a vacancy existed between established land surveys. R. B. Whiteside, president Douglas Oil Company, Duluth, Minnesota, and associate had filed suit for possession of the land on the contention that the land was not a vacancy, but belonged to the abutting surveys. The plaintiffs have announced that the District Court decision will be appealed to a higher court.

I. G. Yates, ranchman, originally bought the land from the state for a nominal sum after the state surveyed the land and found it vacant. In selling the fee rights to Yates, the state retained its usual one-sixteenth mineral interests for the account of the Public School fund. Yates sold oil and gas leases to various companies and operators, and also disposed of portions of his share of the one-sixteenth royalty interests, thus accounting for the large number of co-defendants.

Approximately $50,000,000 worth of oil and gas production has been yielded by the vacancy since the discovery of the Yates field, and this entire sum is held in escrow by the various major companies that handled the production. This money will not be released until the appeal case is disposed of, unless the owners designated by the District Court post the usual bond required by the pipe line companies.

## Belief Is That Neff Will Accept Presidency of Baylor University

Austin, Texas.—Pat M. Neff, member of the Railroad Commission of Texas and former governor, was elected president of Baylor University, February 13, and although he said at that time that he would not make a statement in connection with the matter for several days pending further consideration, it was believed here that he would accept the position.

The vacancy created in the railroad commission, if he resigns, would make possible appointment of an oil man to the body by Governor Ross S. Sterling. An appointee to Neff's place on the commission would serve out the latter's full term, which has five more years to run.

## Geologists Annual Meeting Preliminary Plans Announced

Oklahoma City.—The Seventeenth Annual Convention of the American Association of Petroleum Geologists, will be held here on March 24, 25 and 26, 1932. The new Oklahoma Biltmore Hotel has been selected as convention headquarters and concurrent sessions are being arranged for the geophysicists and paleontologists at the Huckins Hotel. Local arrangements are being made by the Oklahoma City Geological Society with Irvin Perrin, chairman and A. H. Richards, business manager of the general committee. The technical program is being prepared by Dr. Frederic H. Lahee, third vice-president of the association.

Two trips will be made, the first at 4:00 p.m., Friday, March 25, through the Oklahoma City oil field where points of geologic interest will be visited and an inspection made of heavy equipment used in drilling and producing deep wells. The second trip starts at 1:00 p.m. on the following day. The night will be spent in Ardmore and Sunday devoted to the study of stratigraphy of the pre-Cambrian to Cretaceous rocks of the Arbuckle Mountains. Although no announcement of pre-convention reservations has been made, the local committee is expecting a large attendance.

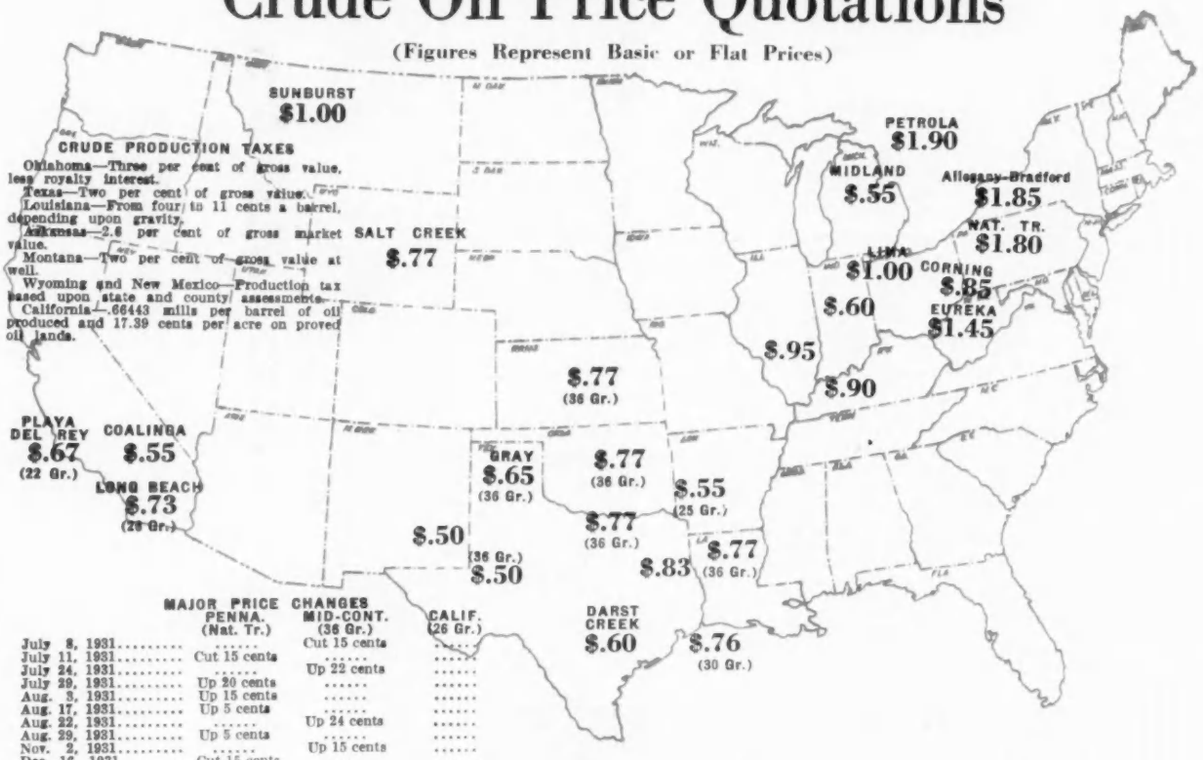
## Hold Gas Measurement Course At Norman on April 26-28

Tulsa.—The ninth annual southwestern gas measurement short course will be held at the University of Oklahoma, Norman, Oklahoma, on April 26, 27 and 28, according to Ben L. Maulsby, chief engineer of operations for the Oklahoma Natural Gas Company and chairman of the course.

The course, which is conducted by the engineering school of the university, has gained nation-wide prominence and each year is attracting an increasing number of attendants from all parts of the United States and from some of the foreign countries. It is sponsored by the American Gas Association, the Natural Gasoline Association of America, the Oklahoma Utilities Association, and the Oklahoma Corporation Commission. The gas measurement laboratory of the University of Oklahoma is probably one of if not the best equipped laboratories of its kind in any American school.

# Crude Oil Price Quotations

(Figures Represent Basic or Flat Prices)




**MAJOR PRICE CHANGES**

| | PENNA. (Nat. Tr.) | MID-CONT. (36 Gr.) | CALIF. (26 Gr.) |
|---|---|---|---|
| July 8, 1931 | ..... | Cut 15 cents | ..... |
| July 11, 1931 | Cut 15 cents | ..... | ..... |
| July 24, 1931 | ..... | Up 22 cents | ..... |
| July 29, 1931 | Up 20 cents | ..... | ..... |
| Aug. 3, 1931 | Up 15 cents | ..... | ..... |
| Aug. 17, 1931 | Up 5 cents | ..... | ..... |
| Aug. 22, 1931 | ..... | Up 24 cents | ..... |
| Aug. 29, 1931 | Up 5 cents | ..... | ..... |
| Nov. 2, 1931 | ..... | Up 15 cents | ..... |
| Dec. 16, 1931 | Cut 15 cents | ..... | ..... |

## Official Postings and Differentials

*(Revised to February 23, 1932)*

**California:** (Effective June 19, 1931.)

**Signal Hill, Seal Beach and Alamitos Heights:** 14 to 22.9 gravity 65 cents; 23 gravity 67 cents with differential to two cents for each degree upward. Top price for Signal Hill, 30 gravity, 81 cents; top price Seal Beach and Alamitos Heights, 27 gravity, 75 cents.

**Huntington Beach:** 14 to 21 gravity, 65 cents; 22 gravity, 66 cents with differential of two cents for each degree upward. Top price, 27 gravity, 76 cents.

**Inglewood:** 14 to 19.9 gravity 65 cents; 20 gravity 66 cents with differential of two cents for each degree upward. Top price, 25 gravity 76 cents.

**Playa Del Rey:** 19 to 20.9 gravity 65 cents with differential of one cent for each degree upward. Top price, 25 gravity, 70 cents.

**Olinda and Brea Canyon:** 14 to 19.9 gravity 65 cents; 20 gravity 66 cents; 21 gravity 67 cents; 22 gravity 68 cents with differential of two cents for each degree upward. Top price, 28 gravity, 80 cents.

**Coyote Hills:** 14 to 22.9 gravity 65 cents; 20 gravity 66 cents; 21 gravity 67 cents with differential of two cents for each degree upward. Top price, 28 gravity, 79 cents.

**Santa Fe Springs:** 24 to 26.9 gravity 65 cents; 27 gravity 68 cents; 28 gravity 71 cents; 29 gravity 73 cents; 30 gravity 75 cents; 31 gravity 78 cents; 32 gravity 80 cents; 33 gravity 83 cents; 34 gravity 85 cents; 35 gravity and above 87 cents.

**Whittier, La Habra and Montebello:** 65 cents a barrel.

**Torrance:** 14 to 21.9 gravity 65 cents with differential of one cent for each degree to 25 gravity and two-cent differential for 25 gravity. Top price, 25 gravity, 70 cents.

**Richfield:** 14 to 20.9 gravity 65 cents; 21 gravity 66 cents with differential of two cents for each degree upward. Top price, 25 gravity, 74 cents.

**Elwood:** 33 gravity 79 cents; 34 gravity 81 cents with differential of three cents for each degree upward. Top price, 36 gravity, 87 cents.

**Newhall, McKittrick and Kern River:** 55 cents a barrel.

**Midway-Sunset, Elk Hills and Buena Vista Hills:** 14 to 21.9 gravity 55 cents; 22 gravity 56 cents; 23 gravity 58 cents; 24 gravity 61 cents; 25 gravity 64 cents; 26 gravity 66 cents; 27 gravity 68 cents; 28 gravity 71 cents; 29 gravity 74 cents; 30 gravity 76 cents.

**Lost Hills:** 14 to 20.9 gravity 55 cents; 21 gravity 57 cents; 22 gravity 59 cents; 23 gravity 60 cents; 24 gravity 62 cents; 25 gravity 64 cents; 26 gravity 66 cents; 27 gravity 67 cents; 28 gravity 69 cents; 29 gravity 71 cents; 30 gravity 72 cents.

**Coalinga:** 14 to 24.9 gravity 55 cents; 25 gravity 57 cents.

**Wheeler Ridge:** 55 cents a barrel.

**Athens, Dominguez and Rosecrans:** 24 to 24.9 gravity 69 cents with differential of two cents for each degree upward. Top price, 34 gravity, 89 cents a barrel.

**Oklahoma, Kansas, North Texas** (Effective January 8, 1932). Below 29 gravity; 61 cents, with differential of 2 cents for each degree to 40 gravity and above which is posted at 85 cents.

**Texas Panhandle:** (Effective November 2, 1931)

Gray County: Below 35 gravity: 61 cents, with differential of 2 cents for each degree to 40 gravity and above which is posted at 73 cents.

Carson and Hutchinson Counties: Below 35 gravity; 56 cents with differential of 2 cents for each degree to 40 gravity and above which is posted at 68 cents.

**West Texas:** (Effective November 2, 1931).

Crane-Upton, Crockett, Ector, Howard-Glasscock, Pecos and Winkler Counties, Texas and Lea County, New Mexico: 50 cents a barrel.

**Southwest Texas:** (Effective November 2, 1931)

Refugio: Heavy: 75 cents.

Refugio: Light: (Same as Gulf Coast—see below).

**Gulf Coast:** (Effective November 2, 1931)

Goose Creek, Hull, Liberty, Orange, Pierce Junction, Mykawa, Moss Bluff, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugarland, West Columbia, Humble and Refugio Light: Below 25 gravity: 70 cents, with differential of 1 cent for each degree to 40 and above which is posted at 86 cents.

Mirando: 75 cents; Salt Flat: 60 cents; Darst Creek: 60 cents; Pettus: 85 cents; Markham: 67 cents.

**East Texas** (Effective November 2, 1931)

Flat Price 83 cents.

**North Louisiana and Arkansas:** (Effective Nov. 4, 1931)

Caddo, Homer, Haynesville, Bull Bayou, Sabine, Cricton, DeSoto, El Dorado, Cotton Valley, Sarepta, Cartersville: Below 25 gravity 53 cents with differential of 2 cents for each degree beginning with 25 gravity and ending with 40 and above. Top price 85 cents a barrel.

Smackover: 55 cents.

**Rocky Mountain States:** (Effective Nov. 3, 1931)

Salt Creek: Below 29 gravity 61 cents; 29-29.9 gravity 63 cents, with differential of 2 cents each degree to 40 and above. Top price 85 cents.

Elk Basin and Grass Creek: $1.05; Big Muddy: 83 cents; Lance Lance Creek $1.05; Rock Creek: 85 cents; Sunburst: $1.00; Osage: 98 cents; Cat Creek: $1.05 cents; Pondera: 90 cents; Hogback, New Mexico: 80 cents.

**Eastern States:** (Effective November 3, 1931)

Lima: $1.00; Indiana: 60 cents; Illinois: 95 cents; Princeton 95 cents; Wooster: $1.15; Western Kentucky: 90 cents.

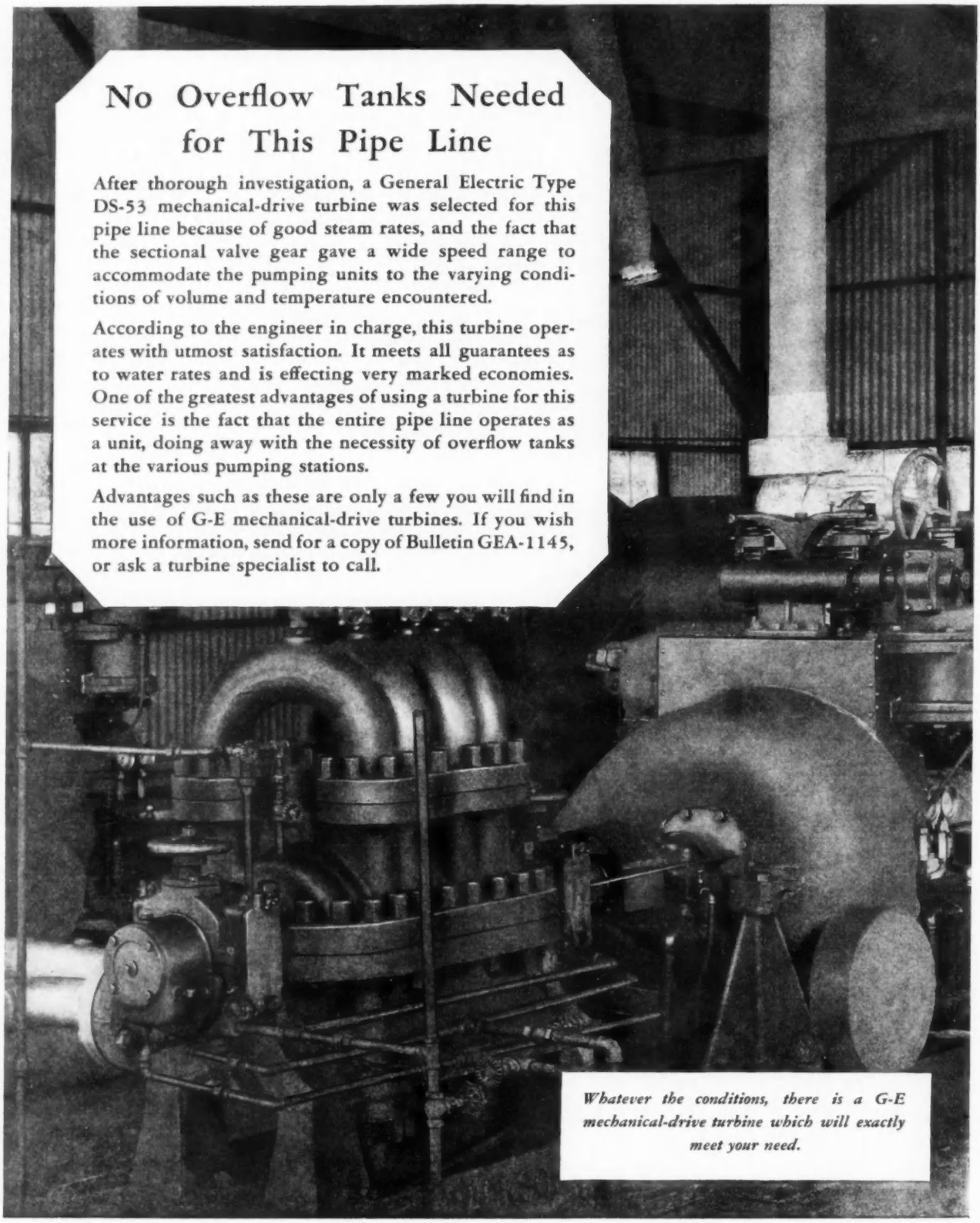
**Pennsylvania:** (Effective December 16, 1931)

Bradford District: $1.85; National Transit Oil: $1.80; Southwest Pennsylvania Pipe Line Oil: $1.55; Eureka Pipe Line Oil: $1.45; Buckeye Pipe Line Oil: $1.25; Corning Crude: 80 cents.

Michigan: (Effective Oct. 9, 1931). Midland: 55 cents a barrel. Muskegon: Same posting as Mid-Continent; 61 cents to 85 cents a barrel.

**Canada:** (Effective Nov. 3, 1931).

Petrolia: $1.90; Oil Springs: $1.97.



## No Overflow Tanks Needed for This Pipe Line

After thorough investigation, a General Electric Type DS-53 mechanical-drive turbine was selected for this pipe line because of good steam rates, and the fact that the sectional valve gear gave a wide speed range to accommodate the pumping units to the varying conditions of volume and temperature encountered.

According to the engineer in charge, this turbine operates with utmost satisfaction. It meets all guarantees as to water rates and is effecting very marked economies. One of the greatest advantages of using a turbine for this service is the fact that the entire pipe line operates as a unit, doing away with the necessity of overflow tanks at the various pumping stations.

Advantages such as these are only a few you will find in the use of G-E mechanical-drive turbines. If you wish more information, send for a copy of Bulletin GEA-1145, or ask a turbine specialist to call.

*Whatever the conditions, there is a G-E mechanical-drive turbine which will exactly meet your need.*

GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

175-39

## Court Rules Against Martial Law Proration in East Texas

(*Continued from page 10*)

the governor, general, and commission in restricting production of its wells had been arbitrary, capricious, without due process of law, and in violation of the Fourteenth Amendment to the federal constitution and consequently of the plaintiff's rights. It was contended, principally, however, that martial law as found in East Texas was in itself unconstitutional; that the governor had exceeded his authority in enforcing proration by military orders, making his acts subject to judicial review. Any other view, it was contended, would assign the governor the powers of a supreme dictator.

Defense attorneys argued, on the contrary, that the act of declaring martial law was not subject to review by a court, since it was an executive function. The only recourse against martial law, they declared, was through a damage suit after termination of martial law or through impeachment proceedings.

With respect to contentions of the defendants, however, the court expressed its opinion in the following words: "It is perfectly clear that unless the defendants can maintain their proposition that they are **ad hoc** the state and therefore may not be sued, or that the declaration of martial law has superseded the federal constitution as the supreme law of the land, and during the time of its fiat continuance placed defendants above accountability to the courts, plaintiffs are entitled to equitable relief, for no clearer case of deprivation of rights inhering in private ownership of property under color of law can be imagined than is here occurring."

Going further into the matter, the court held that there were no constitutional provisions supporting defendants' claims to immunity from judicial inquiry, and none declaring or even considering that a federal court may not by injunction prevent the deprivation of property "such as is here occurring." As to the proposition that the suit is one against the state and as such may not be maintained, it was asserted that the "Defendants do not, they can not, point to any provisions of the federal constitution or statute which exalts an officer of the state when acting beyond his power, above the authority of the courts of the United States."

"We reject then," the opinion continued, "as entirely without substance, contrary to the genius of the two governments, federal and state, and opposed to the very conceptions upon which this government was founded and has been maintained, the contention that any officer of a state, whether acting in a civil or a military capacity, whether executive, legislative, or judicial, can by proclamation or otherwise erect himself above federal court inquiry, withdraw his actions affecting private property from judicial inquiry and insulate himself from judicial process and the consequence of disobedience to judicial decree."

Undertaking then an examination of the merits of the case, the court inquires into the provisions of the Texas state constitution and the power to control an industry through proclamation and martial law.

"It will be noted," the opinion states, "that nowhere in either the constitution or the statutes is a state of war referred to, or the declaration of martial law authorized. It is nowhere provided that the governor may institute it, or that he may in any manner or under any circumstances suspend the laws and deprive persons of access to the courts. Considering these provisions alone, we think the defendants' case fails for want of affirmative authority in that the provisions they invoke do not contain the grant of power claimed . . . That the governor may, in his discretion, call out the militia, the constitution does indeed provide." It was then pointed out, however, that the constitution denies the governor the power to suspend the constitution and laws, the power to invest himself with a military character which will confer on him and the militia any extraordinary powers not given by the civil laws, or place them above the corrective reach of the courts.

It had been stated in the court opinion that the case did not in any manner involve a general inquiry into or an effort to restrain the general power of the governor to call out troops or to take such actions generally with them as he may see fit. It was asserted, however, that "When the governor calls out the troops in Texas he calls them out not as a military but as a civil officer. Their powers are derived from, they must be found in, the civil law . . ."

"Upon consideration of the whole case," the judges said, "we hold not that we may, or that we do, inquire into the propriety of the governor's calling out the troops to enforce the law, but that they were called out to act as civil officers, with no greater power than civil officers would have; that in that action they are amenable to inquiry, as civil officers are, and that neither the proclamation of martial law, nor the purported military character of the actions constitutes any defense to plaintiffs' suit."

In leading up to that conclusion it had been asserted that the military power of the state is subordinate to the civil, and that the military "can not in any state or case take the initiative or assume to do anything independent of the civil authorities."

"Ours is a government of civil, not military, forces," the opinion said. "The militia in active service and in every emergency that arises in such service is subordinate to the civil powers. The soldier and the citizen stand alike under the law. Both must obey its commands, and be obedient to its mandates—we are not willing to concede that in any exigency that may arise the military is superior to the civil authorities."

"We have reached the conclusion," the judges asserted, "that any military order, whether it be given by the governor of the state or any officer of the military, that attempts to invest either officer or private in excess of power that may be exercised by peace officers of a state, is unreasonable and unlawful.

"We hold as a matter of law that orders of the military are confined to such as a peace officer in the discharge of his duty might execute. What one can not do neither can the other. What one may do, so may the other."

## Lower Well Output Substituted For Sunday Shut-Down

(*Continued from page 11*)

at buyers' prices naturally has an undermining influence of the price structure. It so happens that the bulk of this oil eventually finds it way into local independent refineries via trucks, and these plants then slash gasoline prices because of having access to crude that involves a much smaller price than the same commodity costs competing majors. Quantities of gasoline manufactured by East Texas refineries from such crude is being trucked as far west as Fort Worth, and to the Oklahoma and Louisiana borders to be retailed at lower prices than that posted by other marketing units.

From the above facts it can be readily seen that when an East Texas well owner elects to dispose of a portion of his production at half the posted price it has a far reaching in-

fluence. An important gasoline consuming center like Dallas has experienced a market upheaval lately through East Texas gasoline, carrying the U. S. motor grade specifications, being delivered in trucks to retail stations at 9½ cents, and less per gallon, with the four cent tax included.

The Sunday holiday on production in East Texas has been opposed by some of the majors from the start, but adopted because the majority fell in line with the idea. The local refiners were prompt in realizing the opportunities that the banned production offered, and to many it has meant a profit on operations when other plants in the Mid-Continent found it impossible to break even when gasoline prices sustained seasonal dips. A large fleet of tank trucks have been engaged lately in picking up this production throughout the field. A large quantity of the Sunday production remains in lease storage at many of the properties awaiting a buyer.

Independent operators have not been the only violators of the voluntary Sunday shutdown plan, as some of the majors have elected to operate a portion of their wells, especially those exposed to Sunday drainage. Arkansas Fuel Oil Company has been mentioned most prominently, but representatives of this company state that wells completed todate on the 100-well program made with the Consolidated Drilling Company must be operated seven days each week, unless the state rules otherwise. The latter drilling concern is completing 100 wells for Arkansas Fuel Oil Company to be paid from production of such wells. Arkansas Fuel Oil Company was credited with having operated 56 wells out of a total of 79 completions on the second Sunday in February. On this same date Sinclair Oil & Gas Company is reported to have produced oil from 46 of its 169 producers. Other majors operating one or more wells on this same Sunday included: Louisiana Oil Refining Corporation, Tidal Oil Company, The Texas Company and Shell Petroleum Corporation.

## Prairie Pipe Line Stockholders Protest Sinclair-Prairie Merger

Tulsa.—Before the question of merging the two Prairie companies with Sinclair Consolidated Oil Corporation comes to a vote at Independence, Kansas, March 1, it will be forced to pass through a maze of opposition in the form of injunction petitions and concerted protests of dissatisfied stockholders.

Opposition to the merger took form first in protest from stockholders of Prairie Pipe Line Company. Individuals first gave notice of the determination to appear at the coming meeting to vote against the proposition of exchanging 10 shares of that stock for 14 shares of Consolidated Oil Corporation, the name given the concern that will come out of any merger.

Following individual protests came organized opposition through the formation of a committee to handle the situation. This committee has made a plea through newspaper advertising and its strength is such that proponents of the merger have since been busy answering charges raised by dissatisfied stockholders.

Then February 18 a petition was filed in federal court at Fort Scott, Kansas, seeking an injunction to halt the proposed merger. This petition was filed in the name of Lionel F. Straus of New York. Date of the hearing was set for February 25 in Wichita. This move has the backing of many other stockholders. Relief asked of the court is a receivership of Prairie Pipe Line Company, removal of W. F. Gates, its president, and cancellation of the meeting called for March 1 at Independence.

The following day a similar suit was filed in the state court in Montgomery County, Kansas, by J. A. Kell, another stockholder. This petition asked for a receiver in equity.

Liquid assets of Prairie Pipe Line Company are the basis of the controversy. The annual statement of the company issued December 31, 1930, revealed a condition of liquid assets of around $14 a share. Stockholders have been unable to reconcile the exchange of shares with such quick asset value for Sinclair Consolidated Oil Corporation shares with present market value of around $6 a share at a ratio of 1 to 1.4. Aside from quick assets, the concern still has extensive plant facilities which are debt free.

The battle for proxies in the proposed merger is particularly keen in both Prairie companies, as each is a Kansas corporation and a Kansas statute provides that 80 per cent of the stockholders must favor a merger in order to bring it about.

The question of the fairness of the merger is not a one-sided matter, however, as the contentions of disgruntled stockholders have been answered in official statements. W. F. Gates, president of Prairie Pipe Line Company had this to say when suggestions first were made concerning a liquidation of assets of the company:

"As a practical matter liquidation is not possible. Any such liquidation would require the approval of holders of two-thirds in amount of the stock in the company. This approval, of course, would be impossible to obtain, as the great majority of stockholders would not agree to the sacrifices necessarily involved in such liquidation. This is all the more certain in view of the fact that already more than a majority of the stockholders, holding more than a majority of the stock, have sent in their proxies to be voted in favor of the proposed consolidation."

After the petitions had been filed in courts last week, another statement read:

"Response of the stockholders thus far indicates that these fundamental facts are being clearly realized. I am confident, too, that the stockholders are not going to be misled by unfounded allegations in the pending suit which misrepresent or ignore the facts and which can be easily disproved in court.

"This consolidation has only one purpose, namely, to enable Prairie stockholders to make a favorable exchange of their present investment in a restricted phase of the oil business for an investment in a completely rounded-out enterprise covering every phase of the business."

## Answers Filed By Four Major Companies in Allred Ouster Suit

Austin, Texas.—Shell-Union Oil Corporation, Socony-Vacuum Corporation, Standard Oil Company of California, and Standard Oil Company of New Jersey filed answers in the Allred ouster suit on Tuesday afternoon, February 23, each litigant taking exception to the court's jurisdiction. This action prevented entrance of $1,000,000 judgment against each. Dilatory pleas of defendants were then scheduled to be heard next.

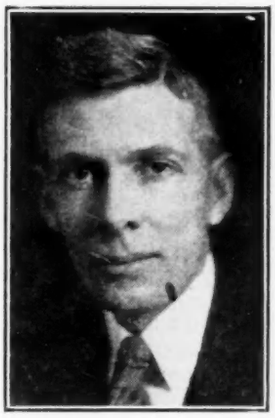
The above action of the several named companies was precipitated when Judge J. D. Moore on opening of court Tuesday morning announced that he would enter default judgment against the companies at two o'clock that afternoon unless they filed answers to the original Allred petition by that time.

Argument on the state's demurrer against the Sinclair Oil & Gas Company plea that it deserved a separate trial was begun. The company contends that it was not marketing in Texas until 1930, while the other defendants were operating in 1929, as charged in Allred's petition.

T. E. SWIGART
*Member Executive Committee, Petroleum Division, A. I. M. E.*

—Blank-Stoller
J. E. UMPLEBY
*Member Executive Committee, Petroleum Division, A. I. M. E.*

—Blank-Stoller
H. C. GEORGE
*Secretary-treasurer, Petroleum Division, A. I. M. E.*



—Blank-Stoller
H. C. FOWLER
*Vice Chairman for Engineering Research, Petroleum Division, A. I. M. E.*

# HIGHLIGHTS OF NEW YORK MEETING

*(Continued from page 14)*

continued to increase at a pace which could accommodate all of the increased output of foreign plants and yet require increasing quantities from the United States. It was not until 1931 that the various factors were combined so as to produce an actual substantial decrease in the foreign demand for United States gasoline. Consumption in foreign countries generally declined, while the output of foreign refineries and the foreign manufacture of substitute fuels continued to increase. From our own viewpoint, this meant a loss of some 18,000,000 barrels of gasoline business in foreign countries, one-half of it probably due to the lowering in foreign demand and the other half to the increased output of foreign refineries and the increased utilization of substitute fuels.

—E. B. SWANFON, *Chief Economist, Petroleum Division, United States Bureau of Mines.*

## The Petroleum Products Situation

CONSUMPTION of gasoline (motor fuel) in the United States in spite of the depression and the chaotic conditions of many industries has increased during 1931 about two per cent over 1930. This favorable factor was offset by a severe contraction in exports which fell off about 30 per cent from 1930. This drop in exports was so large that we did very little more export business than we did back in 1926 or 1927.

You will note that the gasoline curve started down after the memorable October, 1929, and is still headed downward. It is now about nine per cent below normal, having dropped very perceptibly during the last five months; but preliminary figures for January indicate an upturn. The gasoline curve follows during this period the general indexes of business activity, but the fluctuations are much less violent. There also appears to be a lag of four to six months for gasoline. The business activity line of the "Annalist" is plotted on the same chart in the lighter shaded curve. I believe, therefore, that when the business index lines start upwards (as they are bound to do one of these days) that gasoline will very soon thereafter also start upwards.

When business activity quickens again the great pressure to sell goods will be lifted; but, until that time, we can do a great deal by devoting most of our efforts to finding new uses for all of the products of petroleum. Markets must be found and when they are developed it will add greatly to the earnings of the industry. The balance is so fine that if an additional market for even two per cent or three per cent of our products could be developed you could experience a real increase in prices.

—ALBERT J. MCINTOSH, *Standard Oil Company of New York, New York City.*

## East Texas May Pass Flowing Stage During 1932

THERE may be some merit to the recent prediction that a large part of the field will have passed its flowing period by the middle of 1932 unless the present rate of withdrawal is reduced sharply. Reservoir pressures become equalized rather quickly over most of this field as proved during the August shutdown and more recently by the increase of pressures in low pressure areas at the expense of higher pressure areas under the 125-barrel per well allowable. Due to solubility of gas present initial casinghead pressures were but 400 pounds. Bottom-hole pressures, originally 1500 to 1600 pounds, showed an average loss of more than 100 pounds by October, indicating that at the prevailing rate of production over one-fourth of the flowing due to pressure alone had passed when 70,000,000 barrels had been produced. Other Woodbine fields have produced about one-half their ultimate production during the flowing period. Other factors such as the efficient use of dissolved gas, reduction of field allowable to more nearly equal the rate of advance of edge waters, etc., will doubtless prove important in determining the flowing life. In December, one per cent of the wells were making water and five per cent had ceased to flow. Operators were surprised by the low fluid level maintained in many wells pumping but 125 barrels per day. This condition, expected to prevail mostly on the east side, as well as the large quantities of water which will no doubt have to be handled in the west two-thirds of the field will, as usual, increase production costs materially.

It now appears that this field which demoralized the entire oil industry will not have a total ultimate yield much if any in excess of 1½ years' supply for the United States.

—M. G. CHENEY, *President, Anzac Oil Corporation.*

## Expert Testimony on Waste of Gas in Panhandle Is Heard

Pampa, Texas.—A belated attempt to introduce rigid gas conservation rules in Texas Panhandle by the Texas Railroad Commission is the motive behind a three-day hearing on gas waste held here beginning February 15, with C. V. Terrell, chairman of the commission, conducting the sessions. R. D. Parker, chief supervisor of the oil and gas division of the commission, and Fred Upchurch, assistant attorney general, were also in attendance. The hearing was called for the purpose of hearing evidence and expert testimony on gas waste in the district, which is supplying one billion cubic feet of gas daily for processing in natural gasoline plants, besides large quantities of dry gas going direct into natural gas trunk lines. Majority of the oil producers voiced strong opposition against any new conservation rules that will involve expensive re-conditioning of wells, or sacrifice of oil production.

Some weeks prior to the calling of this hearing the commission obtained a list of 165 wells in the district that have a high gas-oil ratio, or are producing an excessive volume of dry gas. This list was prepared by J. M. McDonald, deputy supervisor, and the owners of such wells were requested by the commission to show reasons why the wells should not be repaired, or shut in so as to prevent gas waste.

Testimony was given by representatives of Phillips Petroleum Company and others that an attempt had been made to have the state adopt uniform rules towards accomplishing gas conservation during the early stages of oil development in the Panhandle. In the meantime heavy investments have been made in natural gasoline and carbon black plants that are dependent upon an undisturbed supply of gas, and financial ruin will be sustained by the owners of these plants should drastic gas conservation orders be issued.

McDonald was one of the first witnesses to take the stand. He was cross examined by representatives of the oil companies. It was developed from this witness that if any well, or group of wells, should be forced to set another string of pipe, or be shut in without demanding the same of all other wells offering a high gas-oil ratio that such action would be discriminatory. McDonald admitted under cross examination that it is impossible to flow oil wells in the district without a correspondingly high gas-oil ratio. Testimony was given that if the wells registering a high gas-oil ratio are shut in the ultimate oil recovery from the immediate area will be reduced. Should an order be issued closing in this type of well on a lease that has no other production the owner would be confronted with forfeiture claims by the royalty owners.

A reduction in gas waste could be accomplished at some wells by drilling deeper and increasing the oil yield, according to J. E. Warren, district field superintendent for Continental Oil Company. Lowering of pipe in the hole to case off upper gas formations was another method advanced by Warren as a means of checking the gas waste.

Strongest opposition to any attempt at eliminating gas waste was put forth by representatives of Phillips Petroleum Company, which ranks among the largest producers and manufacturers of natural gasoline and carbon black in the district. Don Emery, counsel for the company, submitted evidence that dry gas wells on top of the structure contribute to the gas waste in delivering the output to natural gas trunk lines just as a so-called oil well does in maintaining a high gas-oil ratio.

Value of the natural gasoline and carbon black production recovered from casinghead gas in the district amounts to more than the revenue derived from oil production, or from dry gas sold to the trunk lines, according to Emery. He added that both the state and county governments receive more tax revenue from natural gasoline and carbon black than is received from the various natural gas companies engaged in transporting gas from the district.

Emery reminded the chairman of the fact that his company had made an effort about six years ago to induce the commission to adopt uniform gas conservation rules when development was in its early stages in order that Phillips Petroleum Company could chart its course on plant investments over the future. He added that in view of the fact that gas waste has been virtually ignored heretofore his company has invested heavily in plants, and rigid gas conservation rules would now cause financial ruin. Relief in the courts will be sought by this company, according to Emery, should drastic rules be issued and enforced by the commission.

As a compromise proposition Emery stated that Phillips Petroleum Company would be agreeable to cutting down its natural gasoline plant operations 50 per cent, if natural gas trunk line owners would assure a market for the residue gas resulting from the restricted operations. It was announced that Phillips Petroleum Company is popping off approximately 130,000,000 cubic feet of residue gas daily from its various gasoline plants after taking care of its carbon black plant contracts, and contracted sales to natural gas lines.

Approximately 470,000,000 cubic feet of natural gas is being consumed daily by flares at the various natural gasoline plants in the district through having no market for this valuable fuel with the gas lines and carbon black plant owners. However, a portion of this popped off gas is contaminated with sulphur, and is not desired by the gas line owners at any price. Estimates given on the volume of casinghead gas run through natural gasoline plants throughout the district places the total at about 1,000,000,000 cubic feet, and all but about 470,000,000 cubic feet daily is used for the manufacture of carbon black and absorbed by the gas lines.

Representatives of The Texas Company and Skelly Oil Company gave testimony favorable to the enactment of conservation rules governing the production of dry and casinghead gas.

Keeping faith with its efforts to curb gas waste in the Panhandle, the railroad commission recently has discontinued its order calling for the open flow gauge of all gas wells at four months intervals. Such information has been required in the past along with the rock pressure reading and total volume of gas sold. Large quantities of gas were necessarily wasted in obtaining this data.

## Supreme Court Scheduled to Hear Conservation Act Validity Arguments

Washington, D. C.—Arguments in the suits brought by the Champlin Refining Company to test the validity of the Oklahoma oil conservation act will be heard by the United States Supreme Court, March 23, it was announced today.

The suits were brought by the refining company to enjoin the state from enforcing the statute on the ground that it is unconstitutional. The company contends that Section 2 of the curtailment act authorizes the corporation commission to fix the price of crude oil produced in Oklahoma in violation of the Fourteenth Amendment to the constitution and, Section 2 not being a separable part of the act, the whole act must fall as in violation of that amendment. It is also claimed that other provisions of the law are so vague and uncertain as not to meet the requirements of due process of law guaranteed by the constitution. The law is also attacked on more than 20 other points.

## Crude Output Will Determine Profits

(*Continued from page 15*)

condition has existed for many months. As a result the price of crude is low. It is below the average cost of production. Nevertheless, if restraints were withdrawn actual production would immediately increase and the situation would become even worse than it is now. Eventually, of course, the law of supply and demand will work a cure. When too much oil is produced and offered on the market the price declines. Lower and lower prices finally affect drilling and this in turn reduces production. This factor is already at work and has been for a year or more. Millions of acres of land held under lease have been surrendered and thousands of stripper wells have been abandoned. At the same time, artificial restraints upon production have to some extent broken the force of the downward price pressure. Nevertheless, the continuing fear that these restraints will cease has had a depressing effect despite the fact that there have been substantial drafts on storage. It is perfectly plain, I think, that the present low prices of crude, coupled with the possibility of even lower prices, would eventually eliminate the oversupply element. But the coincidence at this time of several enormous pools would result in a very severe ordeal to the industry if the pools were unrestrained. On the other hand, with the probability of new pools eliminated or reduced, due to the slowing down of wildcat operations, and with the draft of nearly a billion barrels annually upon the pools now producing, it would take only a few years at most to convert the present over-supply into a shortage. Yes, unrestrained production for a while would be a remedy for the ills of the oil industry, but it would be terrible in its severity and not many of the companies now in business would survive.

There is one school in the industry which firmly believes that this is the best thing after all. But, expressing only my own personal views, I cannot accept that theory, and I believe the industry is well set against it. I believe not only in the curtailment of production by voluntary action of the industry, but in curtailment by statutory enactments, in which commissions and umpires administer the law, see that all producers alike curtail their operations and that one pool is not discriminated against in favor of another.

Our case is different from others. It is different not only on the theory that oil reserves are exhaustible. There is difference based on the nature of producing operation. An over supply of cotton, wheat, pork or hides cannot be ascertained until after it has occurred and the damage done. In the production of cotton, wheat and other farm products acreage is not a controlling factor in forecasts. Without question oil production can be limited currently to consumption or market demand. It needs only legislation against economic waste, or, in other words, law which prohibits production in excess of consumption or market demand. This is government control, but we need this kind of control. Time and time again we have seen the inadequacy of self control. We need a system of state laws, effective in the oil producing states, under which not only physical waste of oil and gas and the waste of propulsion energy, but economic waste of these valuable products, can be prevented. Oklahoma and Kansas already have laws of that kind. California is in the process of such enactment, and there is good ground for the belief that Texas will not continue to lag behind.

The development of this idea of restraint by law against excessive crude oil production has been most interesting. First we had voluntary restraint. As this in some cases became ineffectual, due largely to the greed of minorities, restraint by law was evolved. It is making rapid progress and, I do not hesitate to predict, will soon become the bulwark of our industry in times like the present.

Economic waste is seen in various industries. In this machine age, when over-production presents such serious problems in many lines, it would not be surprising to see various industries advocating this kind of legislation. It may not be practical in all industries, but in a natural resource industry, and especially in ours where nine times out of ten economic waste and physical waste go hand in hand, there can be no sound objection. When economic waste is prevented there is simultaneous prevention of physical waste and conservation of reserve energy, which differentiates our case from even that of other natural resource industries. We are in a position of vantage and should lead. We can help ourselves and at the same time help the whole country and the world at large.

Instead of being a liability our proven reserves are a wonderful asset if properly husbanded. They should give stability rather than instability to the industry. The old fear of oil petering out is no longer present. Stocks in the ground are better than stocks in steel.

Doubting Thomases have pointed to the difficulty of maintaining an equitable balance between states and also between pools. But these difficulties are slight in comparison with the importance of the principle involved. True, the administration in one state, whether acting upon its own views or reflecting the opinion of the industry in that state, may claim too much of the market. True, public officials may not possess the high order of understanding which is desirable. But, after all, it only requires a reasonable amount of fairness and intelligency to bring satisfactory results. We are witnessing at this time the workings of the system. Texas, it is true, has not the kind of law that is required, but due to threatened insurrection resulting from demoralization in oil production the governor of the state has proclaimed and is maintaining martial law. Under martial law oil production in East Texas is being held down to a basis which precludes the waste of reservoir energy, and incidentally to market demand. There may be inequalities as between the states. California may be producing too much or Oklahoma too little. There may be inequalities between the pools. East Texas may be producing too much and Oklahoma City too little. But in the last analysis the result is not bad. The market is not flooded with distress oil, the price is not down to 10 cents a barrel, and the states and pools which have been pinched too much will have their oil when we return to normal conditions and prices are sufficient to cover the cost of production.

The importance of our 12 billion dollar industry, with two million investors, two and one-half million workers, and which, including the income taxes of its investors in normal times, pays nearly one billion dollars annually in taxes, is hard to overestimate. Naturally one shudders at the thought of this structure being wrecked. And I am not thinking so much of millionaires, if any, as I am of the workers and people of moderate means who have invested their savings in good faith. The latter have invested largely in the smaller companies. They would be the sufferers in a wreck. If they were not involved one might be tempted to say, let nature take its course, let oil go as freely as water until all drilling is stopped and known pools are exhausted, after which the business will be on a sound basis. But that would be both heartless and wasteful. Moreover, we would then see the other extreme, scarcity and high prices, in a new cycle which might be as bad as the old. No, we must go forward and not slide back.

# Oklahoma--Kansas Field Notes

FLOYD SWINDELL, *Staff Representative, Tulsa, Oklahoma*

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## Second Commercial Well for Stafford County Completing

Wichita, Kansas.—Midwest Exploration Company's No. 29, CSW SW Section 31-22s-11w, appears likely to be the second commercial oil well in Stafford County, in the southern portion of the Barton-Ellsworth Arch area. Operators cored top of the Arbuckle limestone at 3535 feet and continued to 3546 feet. After drilling out the rat hole and cleaning out, the hole filled 1000 feet in two hours. It is a northeast 40-acre center offset to the company's Richardson 36, SE SE SE Section 36-22s-12w, which was completed September 9, 1930, and shut in for want of outlet. Late in 1931 Midwest Exploration Company secured connections and the well pumped at the rate of better than 1200 barrels daily. On the basis of initial performance of the two tests it seems likely that No. 29 will make equally as good production and it may be better since it is slightly higher structurally. Richardson 36 encountered top of the lime at 3541 feet and was drilled to 3599 feet.

The second well to attract attention during the week is the Aylward et al's Stratman 2, CNE NW SE Section 1-17s-10w, north offset to the company's 2400-barrel discovery well in the Stratman pool in southwestern Ellsworth County. The well swabbed initially 94 barrels per hour from Arbuckle limestone logged at 3267 to 3278 feet. After the swabbing test it was deepened to 3281 feet where it will be given a second test. Stratman 1 was completed April 15, 1931, making a few flows of more than 100 barrels per hour from Arbuckle limestone logged from 3250 to 3271 feet. Stratman 2 probably will be deepened by stages until its penetration is near that of the discovery well.

Robertson et al's Stratman 1, CSE SW NE Section 1-17s-10w, a completion of week before last, pumped 1717 barrels the first 24 hours through three-inch tubing and was given a potential of 1240 barrels calculated on the basis of 2½-inch tubing which is required by the public service commission.

### Harvey County

Imo Oil & Gas Company completed No. 1, NE NE SE Section 35-22s-2w, semi-wildcat test in the Palmer pool in northern Harvey County. Initial production was 125 barrels of oil and 150 barrels of water the first 24 hours from chat horizon at 2957 to 2979 feet. The nearest well, Jones and Shell Petroleum Corporation's Lehman 1, CSE NE Section 35-22s-2w, is a 15,000,000 cubic foot gas well from 3002 feet in the chat. The pool now consists of the two wells listed above and a 30-barrel well completed by Washoma Petroleum Company on the Zook farm, CNW SW Section 36-22s-2w. Two dry holes have been drilled in this section, one to 3000 feet and the other to 3550 feet.

### Goodrich Pool

The Goodrich pool in northern Sedgwick County received its third recent completion during the past week when Continental Oil Company swabbed 475 barrels in 9½ hours from Smith 1, NE NE SE Section 16-25s-1e, located on the old Marland Oil Company block of more than 3500 acres. Production is coming from the Kansas City lime at 2562 to 2614 feet. Although the new completion does not rank as high as the discovery well it is by far the best of the group of wells completed within the past few weeks.

### Burrton Area

Jasper and Beschla have announced location for Voshell 1, NE NE SW Section 3-23s-3w, approximately 11 miles south of the Voshell pool and four miles northeast of the town of Burrton in western Harvey County. Fuel for drilling purposes will be furnished from J. H. Liggett's Frieson 1, NE SW SE Section 10-23s-3w, a gas well completed in July, 1927.

## New Oklahoma City Proration Rule Promotes Gas Conservation

Oklahoma City.—Twelve new locations have been made in the Oklahoma City pool during the past three weeks, four of which were made during the week ending Saturday, February 20. Status of operations on that date was as follows: 18 drilling wells, six locations, 13 rigs, nine waiting on cement to set, two waiting to produce, one fishing, and 27 shut down. Of the latter class a large percentage are tests which have been shut down for many months and probably will not be resumed until ownership changes.

No completions were made during the past week and the total number of wells remained at 873. New rules passed by the corporation commission, permitting among other things, the transfer of allowable production from high gas-oil ratio wells to other wells on a property is one of the most constructive conservation moves yet made by the governing body. Exercise of this option will permit the conservation of gas energy by shutting in wells making over 10,000 cubic feet of gas per barrel, of which it is understood there are more than 80. Gas-oil ratios were being checked by John L. Smith, district conservation officer. Applications for the taking of tests and the transfer of allowable production are being handled through the umpire's office.

Locations made during the past week were as follows: Phillips Petroleum Company, Everest 2, NW SE NW SE Section 15-11n-3w; Carney 1, NW NE Section 22-11n-3w; Garver 1, SW NW NE Section 22-11n-3w; and Anderson-Prichard Oil Corporation's Wilhoit 2, SW NW NE NE Section 10-11n-3w. Those in Section 22-11n-3w are in the comparatively new southwest Wilcox sand area which presumably will eventually connect the north and south Wilcox zones as now defined by the corporation commission.

Adjusted potentials were taken on two recent gusher completions under the new rules which permit the taking of potential tests on the initial gauges. Ocate Petroleum Company's Smith 1, SE NE NE NW Section 15-11n-3w, on the west side of the field, flowed 10,511 barrels in four hours and was given an adjusted potential of 21,022 barrels. The adjusted potential is calculated at one-third of the 24-hour rating which is based on the actual flow times the ratio of the number of hours flow to the full 24-hour period. Phillips Petroleum Company's Dehn 1, NW SW NW Section 3-11n-3w, flowed 14,862 barrels in four hours, for an adjusted potential of 29,724 barrels.

Half interest in a block of 2880 acres in northeastern

Cleveland County has been turned to the T. B. Slick interests by Stanolind Oil & Gas Company and Amerada Petroleum Corporation. The block which was assembled in 1930, consists of SE Section 21; S Section 22; SW Section 23; all of Sections 27 and 28; E Section 26; N Section 33; NW Section 34; and NW Section 35, all in township 10n-1e, approximately four miles south and 18 miles east of the southeast end of the Oklahoma City pool. A contract to drill was signed May 27, 1930, and extended on November 5, 1931. Geologists who have worked the general area east of Oklahoma City think rather highly of it but all are in hopes that drilling may be forstalled until the time when Oklahoma City and the East Texas pools are well along on the way to settled production.

## Wildcat Work in Southern Oklahoma Remains Quiet

Ardmore, Okla.—Southern Oklahoma continued in almost complete hibernation so far as new work is concerned except in one or two of the relatively unimportant areas. Since the fall of Tatums from leadership in that portion of the state but little new activity has been listed but operators know that they cannot continue to meet the demand for southern Oklahoma crude without the discovery of new pools or the development of deeper sands in older areas. One interesting announcement is the decision of Monarch Petroleum Corporation to resume drilling in Gregg 1, SW SW SW Section 36-3s-4w, wildcat test located about one mile west of production in the old Healdton pool in northeastern Jefferson County.

Drilling was stopped late in July, 1931, with total depth at 3930 feet. At this depth the drill apparently had not encountered Viola or Arbuckle limestones although these formations are found at much shallower depths over the Healdton structure. As suggested heretofore, this test substantiates the belief that a fault borders the southwest margin of the Healdton pool, the downthrow side being on the southwest. Most geologists believe that folding movements which formed the structures between Red River and the Arbuckle Mountains came from the southwest and that oil probably migrated into these structures from the same direction. Assuming this to be true, it would seem that any faulting which might border the Healdton pool on the southwest, would have to be younger than the accumulation of oil in the structure or that oil migrated across the fault, in which event the chance for production from Arbuckle limestone or beds above it on the southwest side of the fault, probably would be less remote.

## Four Wildcats Give Lincoln County, Oklahoma, Leadership

Chandler, Okla.—Lincoln County probably leads all Oklahoma counties in interesting wildcats with the addition of a new test during the past week. Sovereign Oil Corporation has driven stakes for Selacek 1, NE NE SE Section 3-12n-5e, reported to be on a structure located by geophysical survey. This brings the total number of rank wildcats in the county to four, one of which probably will be testing Wilcox sand before the end of this week. The latest drilling report shows Hilton Phillips drilling below 2010 feet in Phillips 1, SW SW NW Section 2-14n-3e, northwest of the West Chandler pool. This is the second hole, the first having been lost after penetrating three feet of Hunton lime at 4843 feet.

## Two Oklahoma Wildcats Expected To Show Conclusions During Week

Tulsa.—Of the 16 drilling wildcats scattered throughout Oklahoma, two were being closely watched at the beginning of this week and expected to prove or disprove new production at any time. Probably the most important of the two is Barnsdall Oil Corporation et al's Community-Taylor 1, CSW NW Section 17-14n-5e, located about one mile east of old gas production in the Chandler pool and slightly over two miles southwest of the Davenport pool. This test was commenced as a 5000-foot or Wilcox sand test and is reported running structurally high. Formations and showings encountered were as follows: Top of Peru sand 3551 feet, 3563 to 3581 feet, show of oil and gas; base of Peru 3620 feet; top of Mayes, 4225 feet; Woodford shale, 4434 feet; Hunton, 4464 feet; cored 4463 to 4494 feet, show of oil; Sylvan shale, 4553 feet; Viola limestone, 4638 feet; set 8¼-inch at 4693 feet in Viola limestone. The report of Monday morning, February 22, showed that operators had drilled the plug and were at 4695 feet, still in dense lime but expecting Wilcox sand within a few feet. Ownership is divided as follows: Stanolind Oil & Gas Company, 13.4 per cent; Barnsdall Oil Corporation, 17.25 per cent; Carter Oil Company, 17.50 per cent; Prairie Oil & Gas Company, 8 1/3 per cent; Producers & Refiners Corporation, 8 1/3 per cent; The Pure Oil Company, 9.25 per cent; T. B. Slick interests, 16 2/3 per cent; and Coline Oil Company, 9.25 per cent.

### Kay County

The second in probable importance but equally as interesting is the W. H. Atkinson et al's Hayes Estate 1, SE SE NE Section 24-28n-3e, a Bartlesville or Burbank sand test located approximately 2½ miles northeast of production in the old Mervine pool in the east central portion of Kay County. The location was made on the basis of subsurface study and on a line of reasoning which, although not new, has not been closely followed in northeastern Oklahoma. On the northeast margin of the famous Burbank pool it was found that wells encountered shale at the stratigraphic horizon of the Burbank or Bartlesville sand, thus indicating that the sand graded abruptly into shale up the dip. The same condition was found to exist in the Rainbow Bend pool of western Cowley County, Kansas. Data revealed by dry holes drilled in the vicinity of the Hayes Estate 1, indicate a similar condition and a nearby test to the southwest found about 22 feet of Bartlesville sand and had 1200 feet of oil standing in the hole. So far as can be learned this was abandoned without fully testing. Formations in the present test are running comparatively higher and the upper sands are thicker than those penetrated in any of the nearby tests. The following showings and formations have been logged: 1080 to 1104 feet, show of water; 1180 to 1195 feet, hole full of water; 10-inch casing set at 1368 feet; 1742 to 1753 feet, hole full of water; 1918 to 1969 feet, hole full of water; 8¼-inch casing set at 1987 feet; 2122 to 2130 feet, dry sand; 2170 to 2235 feet, show of oil, gas and water; 2333 to 2388, water sand; 2415 to 2540 feet, Layton sand, hole full of water; 2795 to 2815 feet, hole full of water; 2890 to 2900 feet, show of oil, gas and water; 2900 feet, top of the Oswego lime. Five-inch casing was set at 3140 feet and a water shut-off secured. The report of Monday morning, February 22, stated that drilling was going ahead at 3180 feet with slight difficulty due to cavings. The Bartlesville or Burbank sand is expected at about 3190 feet.

# News From California Fields

**BRAD MILLS, *Staff Representative, Los Angeles, California***

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## Kettleman Hills' Three Delayed Tests Still Not Completed

Coalinga, Calif.—Standard Oil Company of California is drilling at 7378 feet in No. 6-29V, Middle Dome test at Kettleman Hills, and may get the first satisfactory completion in this part of the field. The Bentonite marker was found at 7267 feet and the Temblor should be found above 7575 feet. It may be possible to profit from the experiences of the first deep test on the Middle Dome, but the nature of the formation will largely determine the cementing points.

Petroleum Securities Company has made little headway in Burbank 1, Middle Dome test which would have been the first producer under more favorable conditions. The small string of casing is being milled at 5240 feet, and it now looks as if the water string may be faulty.

North American Oil Consolidated will be given a production test at 8713 feet, but more hole probably will be made before final completion is attempted. A string of 6⅝-inch casing was cemented at 8355 feet and the portion of the Temblor to be tested first may not meet requirements. This edge well has a good chance to produce, being an offset to Shell Oil Company's Dixon 1.

North American Oil Consolidated's Blauvelt 1, edge test on the North Dome, has developed further trouble and cleaning out has become a difficult job. This 9500-foot well established a depth record for the North Dome, but freezing of the drill pipe at about 8800 feet reduced the chances of success. While jarring on the fish at 8480 feet, a section of the pipe used in the washing over operation was lost. The well has assumed a doubtful outlook, but it might be possible to obtain production on deeper drilling.

Bolsa Chica Oil Corporation swabbed Ferguson 1, a flank test on the North Dome, but the results were not satisfactory. This well was drilled to 7768 feet, but the hole apparently bridged with sand. A 6⅝-inch liner will be run to bottom. The 4¾-inch liner was pulled to condition the hole for the larger liner. This well was regarded as very deep at the time it was shut down more than a year ago, but subsequent operations pointed to more favorable developments with deeper drilling.

Production is being held to 60,000 barrels but the field would make three or four times as much on an open flow test. Some of the best wells are completely shut in, while others are producing only a fraction of their potentials.

## Wildcat Between Torrance and Lawndale Had No Favorable Show

Los Angeles.—Mohawk Petroleum Company is abandoning Pavey 1, a wildcat test at El Nido and about midway between the Torrance and Lawndale fields, at 6262 feet. Failure to encounter a single important showing was a distinct disappointment in a district where other wildcats have done much better. This well was located after an extensive study of conditions in the lower Los Angeles basin. Both the usual and geophysical methods were employed and apparently a small structure was found. The Miocene was found around 4865 feet, but even the showings which had been found in this formation in other wildcats nearby were not logged in Pavey 1. The relation of the field to the line of fields along the Newport-Beverly fault was considered, while more local conditions adjacent to the well were also reviewed. Surface indications were favorable, but failure of the well confirms the theory that what appears to be an ideal structure may be dry when drilled. Other wells would have been drilled, had Pavey 1 stood a chance for production.

## Torrance Extension Pumper Not Materially to Increase Drilling

Los Angeles.—Ranger Petroleum Corporation's Watson 2, located east of the Torrance field, is pumping about 60 barrels of 14 gravity oil from 3784 feet and appears to be an important extension to the Torrance field. Opinions differ as to whether the well simply extends the flat nose structure or opens a new producing territory. There are good reasons to believe that it extends the field a good distance to the east. Several wells drilled between Watson 2 and the proven part of the field have produced oil in varying quantities. The Torrance field is naturally a flat structure and produces oil over a wide territory. Various interests holding leases in the district insist that a new field has been opened, but some geologists hold to the theory that such is not the case. The well is temporarily off production. Production at first was 35 barrels, but lowering of the tubing increased the output to about 60 barrels. Some increase in leasing activities has been noted, but only a limited amount of drilling should result from present developments.

## Deep Failure Near Elwood Plugged Back Makes Gasser

Santa Barbara, Calif.—General Petroleum Corporation has succeeded in plugging back and completing More 3, a test along the coast near the Elwood field, and will be able to use gas from the well as needed in the district. This newest producer was originally tested above 5000 feet and deepened to 6912 feet in search of deeper zones. The well was plugged to 4375 feet, a 6⅝-inch perforated liner run from 4200 to 4350 feet and three-inch tubing run to 4175 feet for the final flow test of the upper showings. Gas production was above 30,000,000 cubic feet. The tubing pressure was above 1700 pounds and the casing pressure around 1500 pounds when the well was shut in. A large gas production has been developed on the More ranch and on a small structure which skirts the Pacific ocean. The first well blew out but was brought under control and completed. Despite the large flow of gas, commercial oil production has not been developed.

## Completion of Deep Ventura Avenue Test Presents Problem

Ventura, Calif.—Bolsa Chica Oil Corporation has been puzzled as to the best step to take in completing Hartman 6, a deep test in the Ventura Avenue field which showed water in a portion of the "57" zone discovered last year by Associated Oil Company. The well was drilled to 8611 feet, but the gray sand offered little promise. A 6⅝-inch blank liner was cemented at 8170 feet and it may be possible to perforate this short string and test the zones between 7500 and 7900 feet. The gas pressure above 8000 feet indicated a favorable condition, and a successful completion at that point may be possible. The well is not as favorably located as some of the inside producers, and failure to get a good well in the "57" zone was not wholly unexpected.

## Core From 6300 Feet in Test At Lawndale Not Favorable

Los Angeles.—Smith Petroleum Company has cored a good thickness of oil sand below 6000 feet in No. 9, a test in the Lawndale field, but cores around 6330 feet showed streaks of hard shell which were not so encouraging. The well will be deepened before an attempt is made to run a perforated oil string. The Lawndale field was one of the trickiest ever found in the Los Angeles basin, and only a small production was developed along a narrow strip. Smith Petroleum Company discovered the field and controlled the best leases. Only a few wells were completed, but upward of 100 wells were failures. The accumulation proved to be along a narrow strip on the west side of the structure, as indicated by surface conditions. A revival of extensive drilling operations in the field is extremely doubtful.

## Location Made for Test South Of Production at Devil's Den

Bakersfield, Calif.—Totem Oil Company and R. W. Taylor have made a location for a test in the Devil's Den district, on Section 29-25-19 and a short distance south of the old producing district. This area has produced a small amount of oil for a generation and has interested both major and small companies in the past. Standard Oil Company recently drilled a fairly deep test north of the producing area and developed a small production by plugging back to around 2700 feet. Production at Devil's Den is obtained in much deeper formations than those which produce in the bed of the San Joaquin valley. The district holds possibilities below the Miocene, with the Oligocene and Eocene to be tested further. The Kreyenhagen shale is not deep in this area, and drilling here has indicated that the formations below the Miocene may produce in the bed of the valley.

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Bakersfield, Calif.—Development of natural gas in the Dudley Ridge district, Kings County, offers possibilities for the operator who is satisfied with a nominal flow from shallow depths. The dry gas was not regarded with favor until the use of the commodity became so widespread and the available supply appeared somewhat limited. Eagle Oil & Gas Company's No. 1, Section 15-23-20, which blew out and flowed gas out of control for 10 days, sanded up and was brought under control. Some of the drill pipe and other iron are in the hole. Several wells are being drilled in the district.

# ▼ NEW MEXICO-ROCKY MOUNTAIN AREA ▼

## Ohio Preparing to Drill Offset To Chapman 1 in Dry Creek Field

Red Lodge, Mont.—In the Dry Creek field, Southern Montana, The Ohio Oil Company is building steel derrick for William Robinson 2, SE SE Section 3-7s-21e, which is to be an offset of the company's Chapman 1, which is now on production.

In the same field the company's Industrial 2, Section 11-7s-21e, is drilling below 1185 feet.

The Carbon Oil & Gas Company test on the MacMinn lease, Section 7-7-22, has cemented 12½-inch casing at 462 feet and is standing, waiting for the cement to set. This is Carbon Oil & Gas Company's second test in the field, the first, about three-eighths mile to the north, having had an initial production of 1800 barrels of high grade oil along with 12,000,000 cubic feet of gas. This production is shut in awaiting market.

## Former Governor Shoup Leases 35,000-Acre Block in Colorado

Denver, Colo.—A 35,000-acre block of land has been leased recently by Former Governor O. H. Shoup of Colorado on the Arlington, or Inman structure, in the southwestern part of Kiowa County, Southeastern Colorado. A 5500-foot test is to be drilled on the structure this summer, according to present plans. Objective is the pre-Pennsylvanian formations.

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Casper, Wyo.—The Big Sand Draw gas field in Fremont County, Wyoming, is to be a unit operation field henceforth. Secretary of the Interior Ray Lyman Wilbur has signed an agreement to that effect; this is the third such agreement to be signed by the secretary for the operation of oil and gas fields in the west.

## Wyoming State Officials Favor Cut in Oil Equipment Evaluation

Casper, Wyo.—At a meeting held here, representatives of the various county commissioners' and assessors' associations of the state, with a member of the state board of equalization and oil company tax representatives, it was decided to recommend a 10 per cent reduction in the unit values of oil field equipment to apply to the 1932 schedules. Operators have been returning their properties upon a basis of valuation agreed upon in 1924, and the substantial drop in wholesale prices of equipment makes the tax schedule unfair, the representatives present felt.

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Red Lodge, Mont.—The wildcat well being drilled on Golden Dome structure, in southern Carbon County, Montana, by The Ohio Oil Company, is making good progress and at last report was drilling below 2040 feet. This is a rotary test utilizing electric power. The structure is particularly interesting because of its similarity and proximity to the Dry Creek field lying to the west.

# East Central Texas Field Notes

**H. H. KING,** ***Staff Representative, Fort Worth, Texas***

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## Outbreak of Development Work In East Texas Comes as Surprise

Longview, Texas.—A fresh outbreak of development work in the East Texas field is destined to follow the authorization of 90 locations during the past week. Last week the field is credited with having completed a like number of wells. This new field activity came as a surprise, as a slump was generally forecast when the allowable production per well was lowered from a maximum of 100 to 75 barrels daily on February 5.

Beginning February 21 the majority of the crude purchasers in the field resumed Sunday operations, but in doing so limited their production and purchasers per well to 65 barrels daily, or a total of 455 barrels per week.

Big wells always predominate among the completions added each week, therefore the unusual developments are confined to extensions, water wells and producers registering small potentials. A few falling within the latter classification appeared during the past week, although located on the outer rim of the field.

Welch and associates failed to score flowing production in completing Camp 1, located in the Juan Ximines Survey and near the discovery well of the field, and earned a potential of 275 barrels daily on the pump from broken sand at 3581-3650 feet. Tidal Oil Company's S. S. Laird 2, located on the east edge of production and east of the discovery well of the Kilgore area, earned a potential of 2000 barrels daily after drilling sand at 3704-3719 feet. This light producer is on the James McKim Survey. Stroube and Stroube's School Lot 1, located in southern Gregg County near the center of the east line of the L. B. Outlaw Survey, is reported to have flowed only 30 barrels oil per hour open when tested from sand at 3570-3614 feet, with broken pay continuing to 3624 feet. The latter is also near the edge of the field.

More than a half dozen wells situated on the west flank of the field have been added to the list that are showing b. s. and water within the past two weeks. The bulk of these new additions are recent completions.

## Southwestern Productive Limits Of Van Field More Clearly Defined

Tyler, Texas.—Productive limits of the southwest side of the Van field were more clearly defined last week when Pure Oil Company's J. T. Petty 2, located near the center of the southwest line of 101-acre tract, quit in Austin chalk formation at 3027 feet, when the hole reached a sub-sea depth that would yield only water if the Woodbine sand was encountered.

Drilling was scheduled to be resumed late last week on the Trinity sand test on the Davis tract, located north of the producing area. Davis 1 cemented a string of seven-inch pipe at 6781 feet, with a total depth of 6795 feet. The contractor on this deep test changed to three-inch drill pipe.

Having failed to develop oil or gas production in the Nacatosh sand horizon, Pure Oil Company's D. F. Cade 1, located northwest of the above deep test, is being carried to the Woodbine sand. The top of the Austin chalk horizon was encountered at 2713 feet, and at last reports drilling was in progress below 2800 feet. The Woodbine must be topped at a sub-sea depth of about 2450 feet to be reasonably safe for oil instead of water to be found in the sand.

## Rancho Oil Company Triples Its Holdings in East Texas

Longview, Texas.—Rancho Oil Company, Fort Worth, has more than tripled its holdings in the East Texas field by acquiring Fleetborn Oil Corporation's 106-acre lease and four wells on the J. K. Edwards land, Upshur County, for a cash consideration of $260,000. The former took possession of the property February 15, and is scheduled to consummate the deal this week. The Edwards lease is located near the center of the David Ferguson Survey, and the total depth of each of the completed wells is above the minus 3300-foot level. Deducting a reasonable cost for the four wells, this lease sale involves an average price of about $1700 per acre.

W. C. Josey, Fort Worth, is president of Rancho Oil Company, and a working interest in the above property is also held by R. A. and L. M. Josey, both of Houston.

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Tyler, Texas.—Confident that better crude prices are to prevail by summer, J. J. O'Hern, Tyler, operator, and associates have arranged to divert the output of two wells on the M. M. McMillan 33-acre lease, T. J. Martin Survey, Kilgore area, to leased storage at Friars Switch to be held for a price advance. A four-inch line has been built from the lease to tie into the Gulf Coast Pipe Line Company's (Nat Hunter's) Kilgore-Friars Switch gathering system, and the oil will be accumulated in a 10,000-barrel tank at Friars Switch. The remainder of the production controlled by O'Hern will be sold as produced.

## East Texas Production

Official data on proration enforcement in the East Texas field, as compiled each day by the military authorities, is listed below for the past week:

| Period ending 7 a.m. | Total wells completed | Wells reporting prod. | Wells not reporting: Wells off prod. | Wells not reporting: reporting | Pipe line runs | Total production | Daily average per well |
|---|---|---|---|---|---|---|---|
| February 15. | 4160 | 1115 | 2875 | 170 | 28,807 | 82,888* | 74.3 |
| February 16. | 4170 | 4053 | 21 | 96 | 260,331 | 305,198 | 75.3 |
| February 17. | 4182 | 3987 | 30 | 165 | 274,203 | 305,378 | 76.6 |
| February 18. | 4199 | 4091 | 28 | 80 | 322,030 | 307,946 | 75.3 |
| February 19. | 4210 | 4045 | 41 | 165 | 271,413 | 300,007 | 74.2 |
| February 20. | 4215 | 3931 | 39 | 245 | ..... | 294,973 | 75.3 |

Note—Pipe line runs include receipts plus crude used as fuel and road oil and for washing in wells.

## Development History of East Texas Reflects Orderly Withdrawal

Tyler, Texas.—Whatever may be the outcome of the recent federal court decision under which the martial law program of conservation in East Texas seems destined to be terminated, the history of production in the vast field up to now, stabilized by the militia, reflects an orderly, uniform, restrained withdrawal upon the great accumulation of oil—a production program which petroleum engineers of today generally accept in the main as contributing toward favorable results and high ultimate recovery. The history of the field's production by weeks from discovery to the middle of February is shown in the accompanying tabulation.

Only for a period of about five weeks in July and August of 1931 was the field as a whole subjected to exceptionally heavy withdrawals, although individual wells or groups of wells had previously been flowed at very high rates and it was the flood of oil released from the field during that period of a little over a month last summer which led Governor Ross S. Sterling to place the area under martial law effective August 17, when all wells were completely shut in for 19 days, after which the field was reopened under modified martial law, with the Railroad Commission of Texas restricting output to about 400,000 barrels daily. For several days immediately preceding the complete shut-down under the militia total production soared around 1,000,000 barrels daily from approximately 1600 wells, and although the chaotic conditions which existed made strictly accurate production figures for that brief period impossible, it is said that on the last day before the shut-down the field gave up over 1,250,000 barrels of oil.

By February 16, 1931, there were nearly 4200 producing wells in the large field, and even under the restricted production program which had been followed through a large part of the life of the field, the total recovery had reached 121,941,443 barrels. Under the latest martial law order of Governor Sterling each well is allowed 75 barrels production daily, but a high proportion of the field for several weeks prior to last Sunday followed the plan of observing a shut-down of activities on Sundays without compensating for the holiday in production. Effective for the week including last Sunday, February 21, practically all major operators and crude oil purchasers in the East Texas field, independently of each other, commenced restricting their production to 65 barrels daily per well on the basis of uninterrupted operation for seven days per week, and announced that they would make purchases only upon that same basis.

## Connection Committee Gets Some Unreasonable Requests

Kilgore, Texas.—Included in the applications for pipe line connections for 15 wells presented by operators to the field's well connection committee last week was one made by a local refiner seeking to be relieved of his own production in order to take on additional distressed priced crude. This particular plant owner desires that the committee provide a connection with a purchaser paying the posted price of 83 cents per barrel, then the revenue would be used in acquiring so-called Sunday shut-down crude at 35 to 45 cents per barrel.

In the face of such unreasonable requests the well connection committee is striving to dispose of applications as they are

## Production History of East Texas Field

**Rusk, Gregg, Smith and Upshur Counties**

Sabine River is taken as boundary between Longview and Kilgore districts, and the boundary between Kilgore and Joiner districts is a line extending due east from center of town of Overton.

| Week ending: | Joiner (Henderson) No. wells | Joiner (Henderson) Av. daily prod. | Kilgore No. wells | Kilgore Av. daily prod. | Longview No. wells | Longview Av. daily prod. | Whole East Texas Field No. wells | Whole East Texas Field Av. daily prod. bbls. | Whole East Texas Field Weekly prod. bbls. |
|---|---|---|---|---|---|---|---|---|---|
| Nov. 12, 1930.... | 1 | 185 | ... | ... | ... | ... | 1 | 185 | 1,295 |
| November 19 ... | 1 | 183 | ... | ... | ... | ... | 1 | 183 | 1,281 |
| November 26 ... | 1 | 176 | ... | ... | ... | ... | 1 | 176 | 1,232 |
| December 3 .... | 1 | 184 | ... | ... | ... | ... | 1 | 184 | 1,288 |
| December 10 ... | 2 | 212 | ... | ... | ... | ... | 2 | 212 | 1,484 |
| December 17 ... | 4 | 1,579 | ... | ... | ... | ... | 4 | 1,579 | 11,053 |
| December 24 ... | 4 | 317 | ... | ... | ... | ... | 4 | 317 | 2,219 |
| December 31 ... | 4 | 300 | ... | ... | ... | ... | 4 | 300 | 2,100 |
| January 7, 1931.. | 5 | 501 | ... | ... | ... | ... | 5 | 501 | 3,507 |
| January 14 ..... | 6 | 2,765 | ... | ... | ... | ... | 6 | 2,765 | 19,355 |
| January 21 ..... | 6 | 4,650 | ... | ... | ... | ... | 6 | 4,650 | 32,550 |
| January 28 ..... | 8 | 4,717 | ... | ... | ... | ... | 8 | 4,717 | 33,019 |
| February 4 ..... | 10 | 7,204 | ... | ... | 1 | 158 | 11 | 7,362 | 51,534 |
| February 11 .... | 12 | 12,104 | ... | ... | 1 | 60 | 13 | 12,164 | 85,148 |
| February 18 .... | 17 | 18,606 | 1 | 179 | 1 | 5,721 | 19 | 24,506 | 171,542 |
| February 25 .... | 18 | 21,994 | 4 | 5,246 | 1 | 6,661 | 23 | 33,901 | 237,307 |
| March 4 ..... | 27 | 29,116 | 6 | 22,343 | 1 | 4,578 | 34 | 56,037 | 392,259 |
| March 11 ..... | 39 | 45,776 | 11 | 29,747 | 1 | 7,169 | 51 | 82,692 | 578,844 |
| March 18 ..... | 48 | 40,364 | 17 | 36,868 | 5 | 14,345 | 70 | 91,577 | 641,039 |
| March 25 ..... | 61 | 47,862 | 19 | 56,482 | 6 | 17,769 | 86 | 122,113 | 854,791 |
| April 1 ..... | 84 | 51,486 | 30 | 68,186 | 11 | 24,992 | 125 | 144,664 | 1,012,648 |
| April 8 ..... | 101 | 59,687 | 46 | 104,544 | 17 | 30,754 | 164 | 194,985 | 1,364,985 |
| April 15 ..... | 129 | 62,085 | 69 | 148,123 | 25 | 38,180 | 223 | 248,388 | 1,738,716 |
| April 22 ..... | 146 | 70,003 | 89 | 169,890 | 30 | 58,479 | 265 | 298,372 | 2,088,604 |
| April 29 ..... | 165 | 83,847 | 133 | 187,217 | 39 | 68,713 | 337 | 339,777 | 2,378,439 |
| May 6 ..... | 172 | 95,767 | 171 | 120,885 | 46 | 52,250 | 389 | 268,902 | 1,882,314 |
| May 13 ..... | 203 | 92,484 | 214 | 116,385 | 47 | 48,556 | 464 | 257,425 | 1,801,975 |
| May 20 ..... | 230 | 118,036 | 233 | 124,265 | 70 | 61,511 | 533 | 303,812 | 2,126,684 |
| May 27 ..... | 251 | 123,801 | 273 | 156,074 | 86 | 71,018 | 610 | 350,893 | 2,456,251 |
| June 3 ..... | 281 | 119,188 | 311 | 165,576 | 111 | 66,712 | 703 | 351,476 | 2,460,332 |
| June 10 ..... | 317 | 114,290 | 338 | 168,015 | 126 | 46,729 | 781 | 329,034 | 2,303,238 |
| June 17 ..... | 350 | 114,122 | 379 | 188,868 | 142 | 68,372 | 871 | 371,362 | 2,599,534 |
| June 24 ..... | 385 | 114,438 | 424 | 163,094 | 166 | 82,195 | 975 | 359,727 | 2,518,089 |
| July 1 ..... | 413 | 112,351 | 457 | 144,655 | 187 | 94,951 | 957 | 351,957 | 2,463,699 |
| July 8 ..... | 433 | 126,620 | 495 | 160,041 | 221 | 94,882 | 1,149 | 381,543 | 2,670,801 |
| July 15 ..... | 473 | 146,879 | 522 | 170,614 | 236 | 91,293 | 1,231 | 408,786 | 2,861,502 |
| July 22 ..... | 493 | 181,671 | 558 | 211,986 | 256 | 111,196 | 1,307 | 504,853 | 3,533,971 |
| July 29 ..... | 527 | 226,842 | 579 | 233,716 | 289 | 137,026 | 1,395 | 597,584 | 4,183,088 |
| August 5 ..... | 560 | 230,626 | 603 | 275,726 | 305 | 147,884 | 1,468 | 654,236 | 4,579,652 |
| August 12 ..... | 601 | 269,602 | 645 | 296,278 | 332 | 172,155 | 1,578 | 738,035 | 5,166,245 |
| August 19 ..... | 622 | 305,647 | 668 | 326,281 | 354 | 216,470 | 1,644 | 848,398* | 5,938,786 |
| August 26 ..... | .. | ... | ... | ... | ... | ... | ... | ... | (a) |
| September 2 .... | .. | ... | ... | ... | ... | ... | ... | ... | (a) |
| September 9 .... | 705 | 60,342 | 738 | 69,715 | 436 | 41,438 | 1,879 | 171,495 | 1,200,465 |
| September 15 (b) | 736 | 151,274 | 764 | 167,848 | 467 | 100,303 | 1,967 | 419,425 | 2,516,550 |
| September 22 ... | 763 | 154,114 | 788 | 168,902 | 502 | 106,246 | 2,053 | 429,262 | 3,004,834 |
| September 29 ... | 799 | 136,465 | 819 | 148,463 | 542 | 96,468 | 2,160 | 381,396 | 2,669,772 |
| October 6 ..... | 829 | 143,501 | 856 | 155,482 | 589 | 104,901 | 2,274 | 403,884 | 2,827,188 |
| October 13 ..... | 856 | 148,345 | 884 | 160,513 | 639 | 113,331 | 2,379 | 422,189 | 2,955,323 |
| October 20 ..... | 882 | 138,341 | 912 | 149,957 | 697 | 111,990 | 2,491 | 400,288 | 2,802,016 |
| October 27 ..... | 934 | 143,711 | 944 | 151,814 | 764 | 122,203 | 2,642 | 417,728 | 2,924,096 |
| November 3 .... | 981 | 145,049 | 975 | 148,959 | 841 | 125,433 | 2,797 | 419,441 | 2,936,087 |
| November 10 ...1,010 | | 139,115 | 1,007 | 140,082 | 899 | 123,068 | 2,916 | 402,265 | 2,815,855 |
| November 17 ...1,055 | | 126,685 | 1,040 | 127,584 | 966 | 116,942 | 3,061 | 371,211 | 2,598,477 |
| November 24 ...1,082 | | 131,601 | 1,059 | 131,041 | 1,026 | 125,292 | 3,167 | 387,934 | 2,715,538 |
| December 1 ....1,117 | | 135,320 | 1,082 | 133,465 | 1,092 | 133,448 | 3,291 | 402,233 | 2,815,631 |
| December 8 ....1,139 | | 138,541 | 1,094 | 134,878 | 1,122 | 137,441 | 3,355 | 410,860 | 2,876,020 |
| December 15 ...1,166 | | 129,362 | 1,134 | 127,646 | 1,168 | 130,071 | 3,468 | 387,079 | 2,709,553 |
| December 22 ...1,190 | | 106,524 | 1,157 | 104,459 | 1,207 | 105,053 | 3,554 | 316,036 | 2,212,252 |
| December 29 ...1,206 | | 97,728 | 1,173 | 92,087 | 1,233 | 101,070 | 3,612 | 290,885 | 2,036,195 |
| January 5, 1932..1,230 | | 110,818 | 1,210 | 108,129 | 1,278 | 110,580 | 3,718 | 329,527 | 2,306,689 |
| January 12 .....1,268 | | 112,086 | 1,210 | 108,667 | 1,304 | 112,368 | 3,782 | 333,121 | 2,331,847 |
| January 19 .....1,280 | | 114,326 | 1,227 | 106,760 | 1,347 | 111,695 | 3,854 | 332,781 | 2,329,467 |
| January 26 .....1,306 | | 116,819 | 1,251 | 110,155 | 1,377 | 118,376 | 3,934 | 345,350 | 2,417,450 |
| February 2 ....1,328 | | 116,234 | 1,263 | 110,457 | 1,412 | 122,559 | 4,003 | 349,250 | 2,444,750 |
| February 9 ....1,358 | | 108,669 | 1,289 | 103,501 | 1,444 | 114,951 | 4,091 | 327,121 | 2,289,847 |
| February 16 ....1,391 | | 93,812 | 1,321 | 87,048 | 1,482 | 98,173 | 4,194 | 279,033 | 1,953,231 |
| Total recovery from discovery of field to February 16, 1932..... | | | | | | | | | 121,941,443 |

*Although this figure represents daily average for seven-day period, most of the output for the week was produced in first five days, martial law shut-down of field going into effect on morning of August 17, 1931.

(a) Field was shut down under military orders during period August 17 to September 4, inclusive.

(b) Weekly production figures compiled as of Tuesday under military regulation instead of Wednesday as formerly.

*Tyler, Texas.—Magnolia Petroleum Company has become an outstanding leader in determining crude prices and market policies in the East Texas field. This company was the first to adopt the 65-barrel daily quota per well as a substitute for the 75 barrels per day on a six-day week basis effective February 21. It also took the initiative in cutting the allowable from 100 to 75 barrels daily per well effective February 4. Previous allowables were cut upon orders of state authorities. In handling the price situation, Magnolia Petroleum Company is the only major that retained a posted price of 20 cents per barrel during the open flow period. This company raised the price from 20 to 25 cents per barrel August 13, then on August 22 set the pace for all other purchasers by boosting the price to 68 cents, with the current price of 83 cents ordered effective November 2.*

*Magnolia Petroleum Company substantiates this leadership with approximately 6000 acres of producing leases, bearing 249 completed wells, and is buying oil from more than 400 wells owned by other operators and companies. No other buyers in the field approach this number of outside connections.*

placed on record at military headquarters here. Requests for pipe line connections are supposed to be filed with Sergeant Giles E. Wimberly, and each week a meeting of the well connection committee headed by John G. "Jack" Pew, Sun Oil Company, Dallas, allocates the unserved wells to the nearest purchaser. Relief for all but four on the list was arranged for last week.

The majority of the major purchasers are co-operating with this well connection committee in providing market relief for wells in need of pipe line facilities. The work of the committee would be simplified if all the purchasers would lend a hand, as complications arise when new wells are completed near facilities of the non-buying companies, but isolated from lines of regular purchasers.

## Production of Deep Well in Big Lake Field Restored Successfully

San Angelo, Texas.—Restoration of Group One Oil Corporation's (Continental Oil Company) University 2-B to production over the week-end caused the deep oil output of the Big Lake field to skyrocket to a new peak for the present year. This workover well is credited with having gauged 7675 barrels of 47.9 gravity oil during first 14 hours, with the accompanying gas flow rated at 80,000,000 cubic feet daily. It has a total depth of 8740 feet. Seven other deep producers on steady production in this field are averaging about 18,500 barrels daily, with back pressures held on the casing ranging up to 1500 pounds.

University 2-B is one of the few wells earning the distinction of having too great an oil and gas flow to produce reasonably safe under any conditions. The initial completion was made early last April at a total depth of 8661 feet, rated at more than 20,000 barrels of oil (60 gravity at 48° Fahrenheit) and approximately 250,000,000 cubic feet gas daily. The well had open hole below 8086 feet, where a string of seven-inch pipe was cemented with 750 sacks of cement. Production was promptly killed, and the well capped rather than to attempt to hold down the output to market demand, and try for further reduction of the gas-oil ratio through the application of back pressure. Later developments in the field proved conclusively that a sharp cut in the gas-oil ratio could be attained by drilling to the lower section of the deep lime horizon. Owners of University 2-B authorized deepening work several months ago, and the hole was carried to its present depth without mishap. An effort was made to land a string of 5½-inch flush joint casing at 8680 feet to seal off the heavy gas flow, and by so doing the pipe froze in the hole at 8533 feet. The pipe parted when the weight indicator readings recorded a pull of 285,000 pounds. About 500 feet of this pipe remains in the hole. It may become loosened after the well is allowed to produce a few days. The oil flow from University 2-B was cut from 650 to 435 barrels per hour when the back pressure was increased from 425 to 900 pounds.

## Sulphur Water Appears in Well In Hobbs, New Mexico, Oil Field

Hobbs, N. M.—Sulphur water made further inroads upon the prolific Hobbs field February 17 when Sun Oil Company's H. D. McKinley 2, located 660 feet from the southeast corner of the NE¼ Section 5-19s-38e, developed six per cent emulsion while flowing its proration allowance of 160 barrels daily. The volume of b. s. and water increased to 20 per cent two days later, even though the output of the well was curbed to 80 barrels of net oil daily. This company's McKinley 4 has been cutting since January 1, and is averaging seven per cent while restricted to 95 barrels net oil daily through a three-sixty-fourth-inch choke. Ten other wells on the west flank of the field are making water.

## East Texas Operators Want Militia to Remain on Duty

Tyler, Texas.—Numerous protests were registered during the past week by scores of well owners, royalty interest holders and influential business leaders in East Texas against the possible withdrawal of the militia from the field and replacing proration enforcement in the hands of the Texas Railroad Commission and its field staff. These protests were based on the general belief that only the military, or Texas Rangers can hold proration violations to a minimum, as all other attempts made by forces engaged by the commission to control the field have been failures.

Prompt action taken by the military in shutting down and locking the valves on wells discovered to be producing in excess of the authorized quota is in sharp contrast to the usual procedure followed by employes of the Railroad Commission in dealing with violators in all sections of the state that are supposed to have proration in force. East Texas operators have learned to respect the ability of the military authorities in ferreting out violators of the proration rules, and only a small percentage of the well owners have been detected in committing a wilful violation of the rules.

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Dallas, Texas.—International-Stacy Corporation announces that its Fort Worth offices, together with those of its subsidiary companies, International Derrick & Equipment Company, Roots-Connersville-Wilbraham, Stacey Brothers Gas Construction Company and Stacey Manufacturing Company, have been moved to Room 307, Southland Life Insurance Company Building, Dallas.

F. W. Mohler, Mid-Continent sales manager, and C. B. Caldwell, sales engineer for the Stacey and Roots-Connersville-Wilbraham divisions, and S. B. Creamer, sales engineer for International Derrick & Equipment Company, will be located in the Dallas office.

# South Texas Field Developments

**EARL POST,** ***Staff Representative, San Antonio, Texas***

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## San Antonio Society to Be Host To Geologists at Corpus Christi

San Antonio, Texas.—Corpus Christi, Texas, will be host to members of the San Antonio Geological Society, in annual convention February 26 to 28, inclusive. The meeting celebrates the third anniversary of this organization. The Plaza hotel has been selected as headquarters for the meeting. Herchel H. Cooper, president, will preside.

Geologists from East Texas, Oklahoma, North Texas, and the Gulf Coast area will be present at the meeting, as well as members from the San Antonio area.

A large number of the geologists will assemble in San Antonio Friday morning, February 26, at eight o'clock, from which point the caravan will start an interesting all-day field tour through the area between San Antonio and Corpus Christi. A number of points of geological interest will be viewed and discussed. Ed W. Owen of the Wentz Oil Corporation will be in charge of the trip.

The second day of the meeting will be devoted to technical programs and annual business, including an election of officers. A dance will be held on the roof of the Plaza hotel.

Sunday will be left as an open day for the delegates to visit the fields in the vicinity of Corpus Christi.

Technical papers to be read Saturday include:

The Reynosa, Upland Terrace, and Lissie Deposits of the Central Plain of Texas between the Brazos River and the Rio Grande—A. W. Weeks, Shell Petroleum Corporation, San Antonio.

The Oakville, Lagarto and Reynosa Stratigraphy between the Nueces and Guadalupe Rivers—E. L. Johnson, consulting geologist, San Antonio.

The Reynosa Problem—W. Armstrong Price, consulting geologist, Corpus Christi.

A General Discussion of Recent Development from McMullen County to Austin County with particular reference to the Jackson Series of the Tertiary System—R. C. Bowles, consulting geologist, San Antonio.

Criteria of Faulting in the Pettus Area—Rual B. Swiger, S. R. & C., and Slick Estate, San Antonio.

A Resume of the Laredo District for the past two years —Guy B. Gierhart, Humble Oil & Refining Company, Laredo.

The Concho Divide—M. G. Cheney, consulting geologist, Coleman.

Remarks on Correlation Problems of the Pre-Pennsylvanian in the Central Mineral Region—Miss Tedwig T. Kniker, paleontologist, San Antonio.

The Lower Claiborne on the Brazos River—B. Coleman Renick, Magnolia Petroleum Company, San Antonio.

A Study of the Wildcat Oil Field Ratio and the Per Barrel Discovery Cost of Oil in the San Antonio Fault Country—Frank C. Adams, The Texas Company, Houston.

Some notes on the Marine Wilcox—F. W. Rolshausen, Humble Paleontological Laboratory, Houston.

The San Antonio Geological Society has been a most active organization since its beginning. Formed in February of 1929 with a membership of 20, it has grown to an association of 112, each eligible to membership in the American Association of Petroleum Geologists, of which the San Antonio organization is an official section.

The organization meeting was held in 1929 in San Antonio. The second convention, in 1930, was held in Uvalde. The organization was then successful in securing the national convention of the American Association of Petroleum Geologists in 1931 and held the local meeting in connection.

Beside Mr. Cooper, other officers and directors of the organization are: D. R. Semmes, past president; L. W. Mac Naughton; J. D. Hedley and Ed. W. Owen.

The committee on technical program is composed of L. W. Mac Naughton, chairman; Charles H. Row, Fred P. Shayes, W. Armstrong Price and Donald G. Barnett.

I. K. Howeth is chairman of the field trip committee and C. C. Miller is vice chairman. Other members are: A. E. Getzendaner, Phil F. Martyn, L. W. Clark and L. F. McCollum.

Members of the arrangements committee are W. A. Maley, chairman; H. N. Seevers and Baker Hoskins, Jr.

The resolutions committee is composed of Fred P. Shayes, chairman; T. J. Galbraith and F. C. Owens.

## Bee County Wildcat Sector Gains Prominence as Result of Showing

San Antonio, Texas.—Another wildcat sector of Bee County gained prominence recently when Humble Oil & Refining Company and Hulburt et al's J. C. Wood 1, five miles southeast of Beeville, showed for a possible producer at 5077 feet.

This well originally was abandoned on November 27, 1930, but has been bubbling a little oil and showing gas through the mud for the past several months. The well was cleaned out February 11, and made a head 50 feet into the derrick before it subsided. When the fluid was bailed down 200 feet from the top of the casing, it was shut in, developing a pressure of 200 pounds, but this diminished when opened. The well is 350 feet from the north line and 180 feet from the west line of the J. C. Wood 110-acre farm in the P. T. Irrigation Company survey.

At 4221-33 feet, a sand showed 24 fourbles of salt water and a little gas in four minutes on a drill stem test. A second sand at 5020-55 feet showed gas. The well was then sunk to 5077 feet. A string of 6⅝ inch casing is set to 4949 feet. Its spudding date is recorded as August 9, 1930.

The oil is of specific gravity, 47 degrees, 50.5 per cent gasoline, 23.5 per cent kerosene, 26 per cent bottoms, a good grade of lubricant.

A number of lease deals have been made as a result of the showing. Whether or not this well will be worked over again in an effort to make a producer or another drilled, has not been definitely announced, but it is reported that considerable work will be done in the area.

More than 20 miles to the north, the Damac sector of the Pettus field, also Bee County, continued active. Buck Oil Corporation's George Ray 3, John Williamson survey, got the pay at 3897 feet and drilled to 3903 feet. Casing has been set and the well will be drilled in about February 27. J. M. Davis' Ray 1, 1000 feet southwest of the Damac's dis-

covery well, looks like a dry hole, having reached 3960 feet, eight feet in the sand. It is too low and is showing only a slight bit of oil. Houston Oil Company's Portis 4, A. Smalley survey, most easterly well in the Damac area, is drilling at 3500 feet. Slick Seeligson's Ray 4, Kerr survey, north offset to Portis 3, showed 200 pounds pressure and 16 fourbles of mud and no oil in five minutes on a drill stem test. Cored three feet deeper, additional drill stem tests failed and casing has been set on top of the pay. The same operators' Ray 5, east offset to Ray 3, also in the Kerr Survey, is drilling at 2465 feet.

## Heaving Shale Delays Benedum and Trees' Goliad County Test

San Antonio, Texas.—Benedum and Trees and Plymouth Oil Company's Parks 1, Goliad County, is still troubled with heaving shale. The well had a sand at 4543-55 feet which showed both oil and gas. Casing was set at 4480 feet and a cement plug set to the top of the sand, 63 feet, in effort to cut off the heaving shale. This failed, and a liner and screen were set to 4544 feet, and the heaving shale again kept drillers from making a test. The liner is being pulled and another method tried for controlling this shale.

The well is in the southeast corner of the 402-acre tract in the BS & F Survey No. 8, about 2900 feet southeast of the Gibson Oil Company's Parks 1, which showed for a producer at the same level, but which was abandoned after the heaving shale ruined the test.

## Jacob, Buzzini and Pickett Finish Interesting Shallow Well

San Antonio, Texas.—Jacob, Buzzini and Pickett have just completed one of the most interesting shallow tests ever drilled in South Texas. W. L. Brewer 1, in the northeast corner of the 100-acre tract in the T. B. Sparks Survey No. 14.

The well was abandoned at 1309 feet after having had 32 cores taken. A sand at 427-34 feet showed about 3,000,000 cubic feet of gas. A sand at 885-950 feet showed three fourbles of salt water, little oil and 180 pounds pressure on a 20-minute drill stem test. A sand at 995-1060 feet showed four fourbles of salt water. A total of 110 feet of sand was shown between 1085 feet and 1195 feet, which showed a little oil and gas and 40 feet of mud on a drill stem test. The last core was made from 1300-08 feet, which made gas and salt water.

The test is 750 feet north and 28 degrees east of Pickett et al's Nelson gasser, which made 4,000,000 cubic feet of gas from 425 feet.

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San Antonio, Texas.—C. R. & M. Drilling Company's J. C. Tom 1, A. Lazo Survey, one mile southwest of the Slick Pool, is drilling at 3254 feet, but is reported not to have encountered the Jackson. This well is on the A. W. Talk ranch in De Witt County.

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New York.—Colon Oil Corporation's subsidiary in Venezuela, S. A., reports completion of CM-7 for 3100 barrels through a three-quarter inch flow plug. Casing pressure on CM-7 is 1400 pounds; tubing pressure, 600 pounds.

# LOUISIANA-ARKANSAS

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## Test Shows Possibility of Production From Glen Rose

Shreveport, La.—Possibility of oil production in the Glen Rose formation in Sabine Parish was seen last week in the recovery of six feet of a 14-foot core cut from 4775 to 4789 feet in that horizon, in R. L. Gay, Trustee's Long-Bell Lumber Company A-1, NW NW Section 10-8-13, five miles north of Zwolle.

This test topped Glen Rose at 4204 feet, it is now determined, first identification of this formation being in a core at 4220 feet; surface elevation is 265.4 feet. The part of the core recovered at 4775-89 feet, showed an oolitic lime very much honey-combed and carrying a saturation of light oil. A heavy show of gas was also present where the core was cut and there was no trace of salt water. This test logged the lower Cretaceous at 3430 feet. The Glen Rose from the point of contact to the point where the core with the oil was taken was mostly gray lime and dark and greenish fossiliferous shale.

Unlike the gas producing Glen Rose fields in North Louisiana—Sugar Creek in Claiborne Parish, Rodessa in Caddo Parish, and Cotton Valley in Webster Parish—no definite anhydrite was logged in Gay's test, and no lower Cretaceous red beds have appeared. In Rodessa, Sugar Creek, and Cotton Valley, as well as in 13 gassers in the Bethany gas field of Panola County, East Texas, the oolitic lime of the Glen Rose produces gas, but the formation is always found underneath a stratum of anhydrites. First Glen Rose gas production in North Louisiana was obtained in 1924 in that zone at 3600-3900 feet by Dixie Oil Company in the old Pine Island field of Caddo Parish. Later a few oil producers were completed in that horizon but they were subject to much salt water encroachment. One oil well and one well spraying almost pure gasoline, were completed, in addition to a number of gassers, in this formation at 4400-4700 feet in the Cotton Valley district where the upper Trinity was badly lensed..

A good idea of the extent of the oil potentialities of the Glen Rose in and around the Zwolle chalk rock and marl producing field where the producing strata are found from 2100 to 2700 feet, will be obtained if Loring Oil Company's Bowman-Hicks 18, SW NW Section 15-7-12, Sabine Parish, eight miles southeast of Gay's Long-Bell Lumber Company A-1, is taken to that horizon. Loring's test is now drilling in the lower Cretaceous at 4495 feet and a comparison of the logs indicates the Loring test should reach the Glen Rose oolitic lime at about 5360 feet. Its elevation is 264.1 feet. It topped the Zwolle chalk at 2218 feet, sub-sea, and Gay's test logged this formation at 1632 feet, sub-sea. Gay's test logged Glen Rose at 4204 feet and Loring's test at 3998 feet; Gay's test logged lower Cretaceous at 3430 feet and Loring's well topped this formation at 3998 feet.

Gay has been making a 5⅞-inch hole in his test since the 3798-foot level to which point he made a 9⅞-inch hole, every foot of the way since this level having been cored with a core barrel. He is now reaming down preparatory to setting seven-inch casing or making a drill stem test where the core with the oil show was cut, probably the former.

# Gulf Coast Field Developments

**JACK LOGAN**, *Staff Representative, Houston, Texas*

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## Chicago-Gulf Corporation Starts Two Deep Oil Tests in Edna Field

Houston.—Drilling activities in Jackson County were stimulated this week when Chicago-Gulf Corporation started two deep tests for oil production in the Horse Shoe Lake section of the Edna gas field.

The wells are Drushell 10, located in the western part of the field, and Drushell 4, east of the lake, the latter being an old well which originally was drilled to 2685 feet. Both will be drilled below 5000 feet, in the event commercial oil production is not encountered at a shallower depth. Both are located in a section of the field where the company has five producing gas wells.

Leasing in the vicinity of the prospective deep tests has been active during the past month, a large amount of acreage having been taken up by major companies and independents. Considerable leasing has taken place in the territory south and southwest of Edna also, in the direction of the Victoria County line, where several large blocks have been assembled.

Chicago-Gulf Corporation has blocked a large tract north of Edna, about 17,000 acres, on which torsion balance and geophysical surveys are said to indicate a structural high. It is toward this "high" that exploratory efforts of the corporation will be directed. Additional geological and geophysical work is being done on property of Chicago-Gulf Corporation in the immediate vicinity of Edna.

## Sinclair Completes Well at Barbers Hill; Another Due Soon

Houston.—Sinclair Oil & Gas Company completed this week at Barbers Hill field J. F. Wilburn 9 at 4881 feet for an initial production of 450 barrels through a half-inch choke. The well was swabbed in after 130 feet of .008 Stancliff screen had been set on bottom. Pressure on the choke at time of completion was 200 pounds.

February 24, Texas Gulf Producing Company was scheduled to complete Kirby H-9 at Barbers Hill. This well, situated on the east flank, close to the dome, set 9⅝-inch casing above an oil sand topped at 4830 feet.

Joe Bashara has reached a depth of 1350 feet in anhydrite in Tarbutton 2. Mills Bennett is rigging up on Gulf Fee B-1, located 500 feet from the west and 50 feet north of the south line of a 124-acre tract in the William Bloodgood Augmentation. Gulf Fee B-1 is 550 feet north of the nearest production.

## Naylor and De Costa Set Surface Casing in Fort Bend County Well

Houston.—Surface casing has been set at 140 feet in Naylor and DeCosta's Naylor 1, Fort Bend County, wildcat a mile and a half north of Thompson Station which has been more or less shrouded in mystery since erection of the derrick began in November. Judging from equipment installed, Naylor 1 is scheduled to be a deep test. It is located 6350 feet north 55 degrees east of the southwest corner of the H. M. Naylor 653-acre tract in the Horatio Chrisman Survey.

The most important event among the other three wildcats drilling in Fort Bend County during the week was abandonment of Stone and Wyman's Beard 1 at 975 feet after it had been delayed with a fishing job at 1275 feet. This test was located between Long Point and Damon.

T. R. Booth is rigging up on a wildcat test 922 feet from the west and 475 feet from the south line of the John Rabb Survey, while James T. O'Hara, prospecting in the Pilant Lake vicinity, has passed 1000 feet in his T. A. Brown 1.

## Southerland Et Al to Resume Drilling on Lockridge Wildcat

Houston.—W. D. Southerland et al's wildcat on the C. W. Chapman property, near Lockridge, Brazoria County, is preparing to resume drilling after having been shut down at about 1520 feet since the latter part of December. This test, which spudded in November, is located 290 feet from the south line and 104 feet from the east line of Lot 2, Andrew Robinson Survey.

Outside of The Texas Company's test at Manvel field, this is the only active wildcat in Brazoria County.

## Well in Vinton Field, Calcasieu Parish, Has 800-Barrel Flush Yield

Houston.—A rather profitable producer was obtained in the old Vinton field of South Louisiana last week when Marrs-McLean completed F. H. Gray 9 at 2635 feet for an initial production of 800 barrels of 20.7 gravity oil, 200 pounds pressure, after setting 40 feet of screen in a sand found between 2565 and 2605 feet. Previously F. H. Gray 9 had tested a sand bearing oil at 2300 feet. This upper sand bailed dry when a joint of 4½-inch screen was set. The well is located 464 feet west and 460 feet south of the center of Section 23-10s-12w, Calcasieu Parish.

## Drilling Started on Another Prospect of Cheek Dome Area

Houston.—The second test of the Cheek dome district in Jefferson County got under way last week when Jack Schultz spudded in and drilled to nearly 1000 feet in O. M. Todd 1, located 200 varas south and 58 varas east of the northwest corner of the William Carr Survey, nine miles southwest of Spindle Top oil field.

O. M. Todd 1 is situated two miles northwest of Humble Oil & Refining Company's recently abandoned Nelson 1, which stopped drilling in shale at 6537 feet.

## Oil Sand Reported Encountered In Nacogdoches County Wildcat

Houston.—Harwell and Scully, drilling the wildcat R. T. Driver 1, in Nacogdoches County, are reported to have cored eight inches of oil sand in this well at 3666 feet and to have proceeded on down below 3725 feet, where the well is drilling. R. T. Driver 1 is located about 12 miles southeast of Nacogdoches, or 1500 feet east of the southeast corner of the P. R. Ballard 125-acre tract in the Patricia de Torres heirs.

# Completions for Past Week in U. S. Fields

▼ ▼ ▼

## CALIFORNIA

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| LONG BEACH— | | |
| Chicksan Oil Company, Riedman 1.. | 500 | 5102 |

## KANSAS

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| BARTON COUNTY— | | |
| Mid-West Refg. Co.'s Berscheidt 8, c nw se 12-20-11w | * | 3345 |
| Syndicate Oil & Miller's Boertz 1, ne se ne 13-18-12w | * | 3752 |
| BUTLER COUNTY— | | |
| Blaksley & Wentz, Holliday 2 (owd) cel sw sw ne 24-27-4e | 30 | 2017 |
| COWLEY COUNTY— | | |
| Sooby et al's Moffett 1, cwl nw sw 10-32-5e | * | 743 |
| HARVEY COUNTY— | | |
| F. H. Hollow's Fee 1, sw c nw 20-22-3w | 120 | 3507 |
| McPHERSON COUNTY— | | |
| Stanolind O&G & Olsen Drlg. Co.'s Johnson 1, nw c se 28-19-1w | * | 3494 |
| RICE COUNTY— | | |
| Allison & Fitzwilliam's Walsten 1, nw c 2-21-6w | * | 3485 |

## OKLAHOMA

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| COMANCHE COUNTY— | | |
| Crane & Aikens's Aikins 1, ne c se 14-1n-9w | * | 3265 |
| CREEK COUNTY— | | |
| A. G. Blauner et al's Walker 1, sw se nw 30-17-7e | * | 2995 |
| Magnolia Pet. Co.'s Williams 9, ne c nw nw 10-16-7e | * | 2651 |
| Gled Oil Co.'s Holmes 2, sw c ne 25-19-8e | ¶1½ | 2254 |
| Tulsa Oil Co.'s Flinchum 2, sw c se sw 11-19-9e | ¶2 | 2139 |
| J. A. Wise et al's Harris 1, sw c nw nw 16-14-8e | ¶1 | 1065 |
| GREER COUNTY— | | |
| Roy and D. M. Dowell's Cliffell, nw c 1-7n-22w | ¶5 | 1462 |
| LINCOLN COUNTY— | | |
| Kemp and Nunnellee's Kanady 1, se c sw se 26-17-6e | * | 3360 |
| OKFUSKEE COUNTY— | | |
| Steckoll et al's Holmes 24, nw c se se 16-11-11e | 70 | 2614 |
| OKLAHOMA COUNTY— | | |
| Continental's Anderson & Kerr, Warsaski 1, sw c se sw se 34-12-3w 4 hrs. | 7880 | 6342 |
| I.T.I.O.'s Canfield-Button 3, (owd) nw ne sw 19-11-2w | ¶4 | 4785 |
| OKMULGEE COUNTY— | | |
| Wm. Sherry et al, Pense 1, c nw se 21-16-11e | ¶4 | 2152 |
| SEMINOLE COUNTY— | | |
| Empire O&R's Davis 1, nw ne ne 30-7-8e | 3235 | 2999 |
| Amerada Pet. Corporation's Tiger 4, se nw se 3-8-5e | 955 | 4153 |
| STEPHENS COUNTY— | | |
| Brown et al's Thompson 1, ne c se sw 35-1s-8w | * | 2250 |
| TULSA COUNTY— | | |
| A. E. Bradshaw et al's Cowans 2, nw c sw se 7-19-14e | 2 | 1285 |
| WAGONER COUNTY— | | |
| Marrs et al's Snake 1, se c ne nw 26-18-15e | ¶2½ | 1025 |

## LOUISIANA

### SOUTH LOUISIANA

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| LAKE PELTO— | | |
| The Texas Co., State Lake Pelto 5 | 864 | 1765 |
| STARKS DOME— | | |
| Gulf Ref. Co. of La., Lutcher Moore 29 | 20 | 1135 |
| VINTON— | | |
| Marrs-McLean, F. H. Gray 9 | 800 | 2635 |

### NORTH LOUISIANA

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| CADDO PARISH— | | |
| Shreveport Oil Corp., Muslow B-2 32-21-15 | 50 | 1625 |

***For Tabulation and Comparison See Market Section***

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| RICHLAND PARISH— | | |
| United Gas Jub. Serv Co., Alice Purvis B-1, 34-17-6e | ¶12 | 2441 |
| SABINE PARISH (Zwolle)— | | |
| Eddie Self, Jacobs 3, 1-7-11 | 75 | 2518 |
| A. F. Tarver, Cutrer 2, 12-7-11 | * | 2550 |

## MISSISSIPPI

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| HINDS COUNTY (Jackson)— | | |
| Jas. Alexander, Tr., Independent Realty 1, 1-5-1e | ¶52 | 2346 |

## TEXAS

### EAST TEXAS

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| PANOLA COUNTY, (Bethany)— | | |
| Calatex O&G Co., Agurs 6, B. C. Jordan sur | ¶4 | 2957 |

### TEXAS GULF COAST

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| BARBERS HILL— | | |
| Sinclair O&G Co., J. F. Wilburn 9 | 450 | 4881 |
| FORT BEND COUNTY— | | |
| Stone & Wyman, Beard 1 | * | 1276 |

### NORTH TEXAS

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| ARCHER COUNTY— | | |
| Beer & Kirkwood, Herron 1 | * | 1960 |
| M. M. Bradley et al, Wilson-Maxwell 1 | * | 2100 |
| Bridwell Oil Co., Green 6 | 75 | 1135 |
| Continental Oil Co., Falls 2-D | 120 | 1100 |
| Gohlke & Petroleum Producers Co., Wilson 1 | * | 1601 |
| Perkins & Cullum, Falls-Tipkin 5 | 100 | 1115 |
| United Producers Co., Logan 1 | 15 | 1215 |
| MONTAGUE COUNTY— | | |
| Bridwell Oil Co., Tucker 1 | 200 | 1249 |
| WICHITA COUNTY— | | |
| F. C. Baldwin et al, Overall 3 | 5 | 563 |
| Overall 4 | 5 | 963 |
| C. W. Clark et al, Munger 2 | 25 | 1043 |
| T. F. Hunter & Venmex Oil Co., Waggoner 1-H | * | 1889 |
| Mogren & Anderson, E. E. Goetze 21 | * | 500 |
| YOUNG COUNTY— | | |
| Floyd Ard et al, Jeffery 1-D | * | 896 |
| W. E. Bernhard et al, Morrison 1 | * | 508 |
| O. Bratcher et al, E. S. Graham 1 | † | 570 |
| Bridwell Oil Co., Hawkins 1 | * | 600 |
| Routon 1 | * | 803 |
| Ewing et al, Jeffery 1 | * | 945 |
| Fain-McGaha Oil Corp., Dunagan 1 | * | 1053 |
| N. D. Goldsmith et al, Dunagan 1 | 55 | 944 |
| Hamilton & Helm, Russell 4 | * | 526 |
| Lee Hamilton et al, I. Clifton 1 | * | 825 |
| A. Weilerman 1 | * | 742 |
| W. H. Hammon et al, M. Bullock 1 | * | 950 |
| E. L. Kessler et al, Logan 1 | 15 | 588 |
| King Royalty Co.-Phillips Pet. Co., Larimore 36 | 100 | 703 |
| Kleiner-Hill & West, Johnson 3 | * | 551 |
| Kleiner & Riggs, Larimore 5 | 75 | 700 |
| Larimore 6 | 220 | 705 |
| P. P. Langford et al, Boyd 1 | * | 506 |
| F. Lewis et al, Herring 1 | * | 1005 |
| W. N. Maer et al, Bailey 1 | * | 884 |
| Jones 1 | * | 781 |
| Panhandle Ref. Co., Bridwell 1 | * | 3310 |
| Earl Parker et al, Bullock (Sec. 261) 1 | * | 1570 |
| Roberts Oil Corp., J. W. Davis 1 | 5 | 862 |
| Seitz-Comegys & Seitz, Finch 4 | * | 712 |
| United Producers Co., Larimore 4-A | 90 | 693 |
| O. M. (Doc.) Wallace et al, Anderson 1 | * | 602 |

### WEST TEXAS

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| WARD COUNTY— | | |
| Gulf Prod. Co., Hutchings 9 | 180 | 2750 |

### CENTRAL WEST TEXAS

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| BROWN COUNTY— | | |
| P. K. French (was Darby Pet. Co.) et al, Belvin 8 | * | 1307 |
| PARKER COUNTY— | | |
| Cooke & Muller, Williams-Pickens 1 | * | 2685 |

### CENTRAL EAST TEXAS

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| JOINER AREA— | | |
| Arrow O&G Co., Will Rollins (77-ac) 2 | 10,000 | 3660 |
| Aston Oil Co., J. R. Alford (11-ac) 3 | 8000 | 3680 |
| S. Brachman (was McKenzie-McIntyre) et al, W. O. Alford (10-ac) 1 | 9600 | 3791 |
| E. E. Coombs et al, T. Fox-Stone (53-ac) 5 | 10,000 | 3710 |
| Gulf Prod. Co., Wm. Stone (29-ac) 3 | 7000 | 3770 |
| Humble O&R Co., E. W. Naulls (73-ac) 1 | 7000 | 3718 |
| F. F. Wooster 2 | 8600 | 3803 |
| W. H. McMurray et al, A. D. Blackwell (22-ac) 1 | 9500 | 3670 |
| Mid-Kansas O&G Co., W. T. Grissom (320-ac) 1 | 9600 | 3614 |
| J. F. Mason (116-ac) 3 | 10,500 | 3687 |
| E. E. Moores (200-ac) 10 | 11,000 | 3679 |
| Albert Nathan et al, Deason 1 | 4500 | 3737 |
| Olson Bros., Inc. & Johnson, J. S. Powers (131-ac) 3 | 15,000 | 3681 |
| Pilot Oil Co., M. A. Thrash (32-ac) 3 | 12,000 | 3735 |
| Stanolind O&G Co., Schuler 3-B | 4500 | 3690 |
| Stewart & Duffey, F. Gibson 1 | 8000 | 3844 |
| Tidal Oil Co., Jas. Shaw 4 | 8000 | 3737 |
| Venable & McClanahan (was R. M. V. Oil Co.) Birdwell 6 | 7500 | 3666 |
| Welch et al, Camp 1 | 275 | 3650 |
| KILGORE AREA— | | |
| Arkansas Fuel Oil Co., G. Donelson (40-ac) 1 | 10,000 | 3607 |
| Central Commercial Oil Co., A. A. King-Shell (137-ac) 1 | 5500 | 3712 |
| E. & F. Pet. Corp., M. Jackson (16-ac) 1 | 8800 | 3687 |
| Everts Drilling Co., Beasley 9 | 7500 | 3854 |
| Gulf Prod. Co., H. C. Alexander 6 | 8500 | 3555 |
| C. W. Culver 5 | 6000 | 3563 |
| W. Florence (147-ac) 6 | 7500 | 3730 |
| Houston Oil Co., H. T. Elder (16-ac) 2 | 10,000 | 3600 |
| Houston-Heep Oil Corp., M. B. Hughey 2-B | 11,000 | 3488 |
| Humble O&R Co., M. Robertson (15-ac) 3 | 9600 | 3701 |
| Imperial Pet. Co. (Harry S. Moss), F. Marshall (39.2-ac) 3 | 9500 | 3575 |
| Kirby Pet. Co., J. Reddic (96-ac) 2 | 8700 | 3745 |
| Lewis Prod. Co.-Selby O&G Co., L. C. Pegues (40-ac) 3 | 7500 | 3655 |
| Louisiana Oil Ref. Corp.-J. I. Roberts, W. C. Griffin (71-ac) 2 | 9500 | 3588 |
| F. L. Luckel et al, Anna Bean 1 | 7500 | 3607 |
| Magnolia Pet. Co., A. Hicks (99-ac) 4 | 10,000 | 3697 |
| Ben Laird (82½-ac) 7 | 12,000 | 3591 |
| Pilot Oil Co., J. M. Johnson (11-ac) 3 | 7500 | 3565 |
| Sells Petroleum, Inc., Williams 1 | 8000 | 3579 |
| Sneed et al, Griffin Davis 1 | 15,000 | 3621 |
| Stanolind O&G Co., A. A. Lockhart 1 | 9000 | 3620 |
| Stroube & Stroube & Black, Wm. Jernigan 2 | 7500 | 3742 |
| School Lot 1 | 1000 | 3624 |
| Tidal Oil Co., M. G. Barton 5 | 10,000 | 3620 |
| Jack Bean 4 | 6000 | 3581 |
| S. S. Laird (17-ac) 2 | 2000 | 3719 |
| Wheelock & Collins, Wm. Clayton (73-ac) 2 | 9600 | 3518 |

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| **LONGVIEW AREA—** | | |
| Arkansas Fuel Oil Co., Thad Snoddy (51-ac) 3 | 13,000 | 3600 |
| H. Stephens (57-ac) 3 | 10,000 | 3620 |
| E. L. Walker (22.65-ac) 2 | 9000 | 3664 |
| Atlantic Oil Prod. Co., A. V. Bacle 1 | 12,000 | 3668 |
| M. Fisher (65-ac) 4 | 11,000 | 3535 |
| Atlantic & J. K. Wadley, T. W. Lee (110-ac) 3 | 9600 | 3643 |
| Barbier-Haberle & Gibson, D. Johnson (11.23-ac) 1 | 8500 | 3647 |
| Barnsdall Oil Co.-Sun Oil Co., G. W. Bingham 5 | 15,000 | 3557 |
| Jas. Burns et al, J. M. Whittle (Blk. 36) 1 | 10,000 | 3678 |
| Byrd & Frost, Inc., J. J. Reppond (49-ac) 2 | 11,000 | 3726 |
| Columbia O&G Co., J. B. Doby (42-ac) 2-A | 12,000 | 3590 |
| J. G. McGrede (41-ac) 2 | 12,000 | 3629 |
| Danciger O&R Co., T. B. Stinchcomb (84-ac) 1 | 7000 | 3755 |
| Deep Rock Oil Co., Allen Tooke (44-ac) 3 | 13,000 | 3570 |
| Dillard Oil Co., W. E. Jones (50-ac) 5 | 11,000 | 3659 |
| Empire Gas & Fuel Co., J. C. Bumpas (68-ac) 3 | 15,000 | 3511 |
| Fleetborn Oil Corp., (now Rancho Oil Co.) Edwards (106-ac) 3 | 11,000 | 3684 |
| F-H-E Oil Co., J. F. Flemister (37-ac) 4 | 10,500 | 3666 |
| Gilcrease Oil Co., A. Christian (31-ac) 3 | 9600 | 3620 |
| Gulf Prod. Co., I. Anderson (15.7-ac) 3 | 10,000 | 3493 |
| Humble O&R Co., T. B. Harris (175-ac) 7 | 7000 | 3550 |
| A. L. Hughes (91-ac) 7 | 15,000 | 3657 |
| T. B. Miller (57-ac) 1-B | 6500 | 3650 |
| Imperial Pet. Co., (H. S. Moss), W. C. Shoults (21-ac) 1 | 13,000 | 3700 |
| W. W. Lechner & Hubbard, Floyd Jones (63¾-ac) 1 | 15,000 | 3590 |
| Magnolia Pet. Co., F. M. Fonville (50-ac) 2 | 12,000 | 3581 |
| J. C. Robbins (was Van H. Hatcher) et al, Geo. Boyd (1-ac) 1 | 8500 | 3660 |
| Sabinas Oil Corp., T. M. Collins (126-ac) 6-C | 8600 | 3665 |
| Shell Pet. Corp., H. Hampton (169-ac) 3 | 10,500 | 3671 |
| Simms Oil Co.-G. E. Hubbard & Columbia, Tenery (7.9-ac) 2-B | 10,000 | 3621 |
| J. R. Smith Properties, J. B. Doby (20-ac) 2 | 6500 | 3500 |
| Stanolind O&G Co.-Simms Oil Co., Castleberry 2 | 9600 | 3590 |
| F. M. Fonville (100-ac) 6 | 11,000 | 3556 |
| Louis Sikes (Crescent Oil Co.), F. F. Stancil (32-ac) 2 | 10,000 | 3712 |
| Sun Oil Co., McKinley (80-ac) 5 | 11,500 | 3642 |
| Superior Oil Co., L. C. Ingram (160-ac) 9 | 13,000 | 3620 |
| J. A. Woods et al, J. S. Sanders (45-ac) 2 | 9600 | 3663 |
| Yount-Lee Oil Co., J. D. Davis (80-ac) 4-A | 10,000 | 3578 |
| J. G. McGrede (53-ac) 3 | 9600 | 3551 |
| **VAN FIELD—** | | |
| Humble O&R Co., Mrs. E. E. Carroll (98.8-ac) 5 | 12,000 | 2842 |
| Pure Oil Co., J. T. Petty (101-ac) 2 | * | 3027 |

### SOUTH TEXAS

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| **BEXAR COUNTY—** | | |
| Alamo Nat'l Gas Co.'s Gembler 3 | 10 | 718 |
| Gatlin Oil Co.'s Beck 10 | 7 | 710 |
| W. R. Swearingen's Halbardier 7 | 10 | 710 |
| **LIVE OAK COUNTY—** | | |
| Houston Oil Co.'s Cartwright 24 | ¶2-60 | 5323 |
| Jacob, Buzzini & Pickett's Brewer 1 | * | 1309 |
| **STARR COUNTY—** | | |
| Hooks & Weaver's Kelsey Bass 3 | 20 | 480 |
| San Marcos Drlg. Co.'s Ivey 5 | * | 335 |
| Ivey 6 | ¶¼ | 287 |
| Suttle & Rutherford's Kelsey Bass 1 | * | .... |
| **WEBB COUNTY—** | | |
| French Oil Corp.'s Benavides 5-A | 75 | 2335 |

### ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; t¼—sal water; †—junked and abandoned; ¶—million feet of gas; abn — abandoned; bbls—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd — shut down; sdtr — sidetracking; sp — spudding; sr—straight-reaming; std — standardizing; sw — salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| **WILSON COUNTY—** | | |
| A. M. Blume's Nickelson 1 | * | 1600 |
| **ZAPATA COUNTY—** | | |
| Bob & Richey's Martinez 28 | 1 | 175 |
| Martinez 29 | 2 | 174 |
| S. R. & C. Oil Corp.'s Montemayor 7-D | 175 | 1475 |

## NEW MEXICO

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| **EDDY COUNTY—** | | |
| Leonard & Levers, State 6 | ¶1¼ | 2343 |

## EASTERN STATES

### PENNSYLVANIA

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| **BRADFORD FIELD—** | | |
| Sloan & Zook Oil Co., Duke 17 | 4 | .... |
| S. & L. Tartarella, Fee 3 | 2 | .... |
| South Penn Oil Co., Melvin 296 | 2 | .... |
| Minard Run Oil Co., Cram 9 | 2 | .... |
| G W Smith Estate, Smith Estate 5 | 13 | .... |
| D. W. Huffman Estate, Huffman 10 | 2 | .... |
| M. Hungeville, Fee 22 | 3 | .... |
| Dallas Oil Co., Dallas 6 | 3 | .... |
| T. P. Thompson, Jr., Borden 18 | 4 | .... |
| Ryan & Ball, Robertson 6 | 3 | .... |
| Indian Creek Oil Co., Fee 3 | 7 | .... |
| Fee 4 | 4 | .... |
| Bradford Producing Co., Harter 7 | 3 | .... |
| R. S. Pringle, Bingham 464, Tr. 38 | 2 | .... |
| F. M. Johnson & Son, Franchot 4 | 3 | .... |
| **MIDDLESEX COUNTY—** | | |
| Local Oil Co., Albert 1 | ¶¼ | .... |
| **CLARION-VENANGO COUNTIES—** | | |
| United Natural Gas Co., Sizle 4030 | ¶1 | .... |
| W. S. Hahn, Sloan 3 | 3 | .... |
| Thompson & Rice, Thompson 8 | 2 | .... |
| **BUTLER COUNTY—** | | |
| Floyd Albert, Albert 3 | ¶1 | 1886 |
| W. J. Goettman, McKinney 1 | ¶¼ | 2785 |
| **TIOGA-WAYNE COUNTIES—** | | |
| J. T. Carpenter, Disbrow 1 | 2 | .... |
| Talliaferro Corp., Smith 1 | * | .... |
| Penn Power & Light Co., Middaugh 1 | * | .... |
| Mutual Natural Gas Co., Tioga 1 | ¶9 | .... |

### SOUTHEASTERN OHIO

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| **WASHINGTON COUNTY—** | | |
| Charles Vaughn, Vaughn 4 | * | 750 |
| Gross Freebault, Weekley 3 | * | 1350 |
| F. L. Johnson & Co., Crago 4 | ¶¼ | 3300 |
| John Wagner, Wagner 4 | 10 | 732 |

### CENTRAL OHIO

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| **ASHLAND COUNTY—** | | |
| Commonwealth Gas Corp., Shearer 1 | * | .... |
| **COSHOCTON COUNTY—** | | |
| The Preston Oil Co., Beatty 1 | 50 | 3156 |
| **HOCKING COUNTY—** | | |
| Griffin Producing Co., Park 1 | ¶½ | 2842 |
| **MEDINA COUNTY—** | | |
| Oko Oil & Gas Co., McVickers 36 | * | 435 |
| Edson Co., Frank 35 | 25 | 493 |
| **PERRY COUNTY—** | | |
| Hopewell Gas Co., Scallon 2 | 30 | 3167 |
| **STARK COUNTY—** | | |
| William Pfeiffer, Snyder 1 | ¶3½ | 4430 |
| Ohio Fuel Gas Co., Hitz 1 | ¶7 | .... |
| Buchtel 1 | ¶3¼ | .... |

### KENTUCKY

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| **DAVIESS COUNTY—** | | |
| Mida McMahon, Jones 2 | 175 | 622 |
| Brenner & Adams, Jackson 1 | 20 | 612 |
| S. H. Russell & Co., Bruner 1 | * | 800 |
| **HANCOCK COUNTY—** | | |
| Sand Petroleum Co., Bolling 1 | ¶¼ | .... |
| Ivyton Oil & Gas Co., Smith 1 | * | .... |
| **OHIO COUNTY—** | | |
| Porter, Burgess & Co., Hanna 2 | * | .... |

### MICHIGAN

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| **MIDLAND COUNTY—** | | |
| The Pure Oil Co., Howland 1 | * | 3434 |
| Theodore Oil Co., Robinson 1 | * | 3668 |
| **MECOSTA COUNTY—** | | |
| L. D. Meherten, Bauman 1 | * | 3908 |

### NEW YORK

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| **ALLEGANY COUNTY—** | | |
| Sepany Oil Co., Stewart 7 | 3 | .... |
| A. L. Shaner & Co., Reddy 4 | 3 | .... |
| N. V. V. Franchot, Shaner 6 | 4 | .... |
| Kroh & Dieter, Foster 1 | * | .... |
| Flynn Oil Co., Flynn 2 | 2 | .... |
| F. W. Stephan & Co., Kurtzshaltz 10 | 2 | .... |
| Pure Penn Oil Co., Kinley 3 | 2 | .... |
| B. McCaffrey & Co., McCaffrey 5 | 5 | .... |
| Forest Oil Corp., Fee 62 | 2 | .... |
| Fee 63 | 2 | .... |
| Fee 64 | 2 | .... |
| Mrs. H. S. Westran, Westran 3 | 4 | .... |

### WEST VIRGINIA

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| **CALHOUN COUNTY——** | | |
| Creed Barker & Co., Hathaway 1 | ¶½ | 2122 |
| W. Bickerstaff & Co., Hadox 1 | ¶¼ | 2140 |
| **GILMER COUNTY—** | | |
| Pittsburg & West Virginia Gas Co., Bartlett 7572 | ¶¼ | 1824 |
| **PUTNAM COUNTY—** | | |
| Clark & Life, Chapman 1 | ¶¼ | 2107 |


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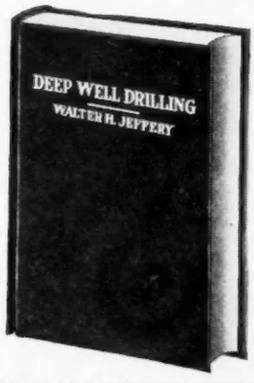


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# Permits Granted for New Wells

▼ ▼ ▼

## CALIFORNIA

FRUITVALE—Bankline Oil Co., No. 2, 21-29-27.

DOMINGUEZ—Union Oil Co., Carson 5, 33-3-13.

KETTLEMAN HILLS—Powell-Stockton Investment, No. 2, 32-22-19; No. 3, 32-22-19.

## KANSAS

CHASE COUNTY—K. R. & T. Gas Co.'s Stevenson 1, c ne ne 27-19-6e.

COWLEY COUNTY — McKnabb et al's Hutto 2, lot 10, blk 25, Reynolds Addn. City of Winfield, 22-32-4e; Roth & Faurot's Cavitt 1, lot 4, blk 17, Reynolds Addn. City of Winfield, 22-32-4e; Roth & Faurot's Moncreif 3 (cwd) lot 1, blk 26, Reynolds Addn. City of Winfield, 22-32-4e; Roth & Faurot's Reidy 1s, sw nw ne 8-32-8e.

ELLSWORTH COUNTY—Slick, Pryor and Lockhart's Heiken 1, ne c 26-17-10w.

GREENWOOD COUNTY — Gore et al's Smith 2, se sw ne 6-24-12e.

McPHERSON COUNTY—Shell Pet. Corp.'s Helstrom 1, sw c ne 35-19-3w.

MORRIS COUNTY—Castle et al's Furney 1, ne c se 16-16-8e; Rose et al's Hirt 1, nw c sw, 15-15-7e.

SEDGWICK COUNTY—National Refg. Co.'s Murdock 4, c se se 18-27-2e; Continental Oil's Hampson 1, se c nw 15-25-1e.

WOODSON COUNTY—Sheedy et al's Barriard 1, csl sw nw 14-25-13e.

## OKLAHOMA

CREEK COUNTY—Gled Oil Co.'s Hamilton 3, ne c nw ne 29-19-9e; S. W. Anthony's Whetstone 10, ne c nw 3-16-12e.

MARSHALL COUNTY — C Davis et al's Minters 1, nw c sw nw sw 30-7s-6e; T. A. Starrett's Henry 1, ne c sw 22-7s-6e; Porter Newman et al's Henry 1, nw c 22-7s-6e.

OKFUSKEE COUNTY—Rossiter Oil Co.'s Fee 1a, nw c sw nw ne 22-12-11e; H. Steckoll et al's Holmes 25, ne c sw se 16-11-11e.

OKLAHOMA COUNTY—I.T.I.O.'s Little 2, cel nw ne ne 27-11-3w; M. T. Smith et al's Packing Co. 1, ne c nw nw sw 3-11-3w; I.T.I.O. et al's Ivanhoe 4, cwl sw se ne 15-11-3w; I.T.-I.O. et al's Lawrence Place 5, se sw ne 15-11-3w; Gulf Production Corp.'s Wilmont Place 1, cel ne ne sw 22-11-3w.

OKMULGEE COUNTY—M. J. Sullivan et al's Nubbie 1a, ne c 34-15-12e.

OSAGE COUNTY—Lindy Oil Co, 3, ne nw sw 29-20-12e.

POTTAWATOMIE COUNTY — Oils Inc.'s Horne 1, sw c 13-6-3e; Carter Oil Co. et al's Tucker 1, se c 34-7-4e.

STEPHENS COUNTY — Ed Chamberlain's Parker 1, cel ne se se 11-2s-8w; Continental Oil, Dare 2, ne c nw sw se 2-2s-8w; J. C. Chambers et al's Dare 1, nw se se 2-2s-8w.

TULSA COUNTY—Chastain Oil Co.'s Barnett 1, ne c se ne se 13-18-14e.

WAGONER COUNTY — Sands Petroleum Co.'s Robin 1, sw c se sw 23-18-15e.

## LOUISIANA

CALCASIEU PARISH—Marrs-McLean, Vinton, F. H. Gray 13, 23-10s-12w, 464 ft w and 460 ft s of center of section.

CAMERON PARISH — Texas Co., Shreveport, State East Hackberry 9, 12s-9w, 2229 ft n and 918 ft e of se cor of sec, 15-12s-10w; 10, 12s-9w, 2375 ft n and 564 ft e of se cor of sec. 13-12s-10w.

LA FOURCHE PARISH—States Production, Thibodeaux, La., Swamp D, 72-15s-15e, 1955 ft s and 1556 ft w of ne cor of sec.

SABINE PARISH—Crescent Drlg., Monroe, La., Cook 1, 12-7n-11w, 330 ft s and 330 ft w ne cor ne ¼ of nw ¼; Texas Co., Shreveport, E. Giauque B-1, 10-7n-13w, 330 ft s and 330 ft w of ne cor of se ¼.

ST. LANDRY PARISH — W. A. Aggers, Lake Charles, La., S. D. Cochren 1, 21-6s-5e, 250 ft s and 250 ft e of nw cor of frac. sec.

TERREBONNE PARISH—Freeport Sulphur Co., Houma, La., Bay St. Elaine 1, 8-22s-18e, 1200 ft n and 2660 ft w of se cor of sec.

***For Tabulation and Comparison See Market Section***

## TEXAS

BEE COUNTY—T. B. Slick Est, Oklahoma City, G. A. Ray, 5, Geo. A. Kerr sur, sw cor. Buck Oil Corp, San Antonio, G. A. Ray, 100, 3, J. W. Williamson sur, 150 ft from n and 175 ft from w line. Houston Oil Co., Houston, J. F. Portis, 288, 4, A. Smalley sur, 150 ft from n and 836 ft from w line.

BOWIE COUNTY—Burnham, Robinson & Greer, Shreveport, La., F. O. Weis, 949, 1, J. Dean sur, 163 ft from w and 1000 ft from s line.

BROWN COUNTY—S. C. Herring, Brownwood, R. L. Fry, 20, 1, S 43, HT&B sur, 150 ft from e and 200 ft from s line. Texas Co., Cisco, F. Lowe, 320, 87, B 622, J. Stubbleffeld sur, 150 ft from n and 1332 ft from e line. Caldwell Bros., Brownwood, J. D. Caldwell, 80, 2, B 13, K. C. S. L. sur, 600 ft e of No. 1. S. B. Owens, Brownwood, W. J. Lynch, 114, 3, B 40, M. Little sur, 950 ft from n and 826 ft from e line.

BURLESON COUNTY — Inland Oil Co., Dallas, Duckworth, 2598, 2, P. Singleton sur, 450 ft ne of No. 1.

CALLAHAN COUNTY — Ralph Herring, Ranger, Berry, 153, 1, S 79, Bayland Asy sur, 150 ft from s and e lines. S. E. Solgin, Dallas, J. C. McDermitt, 163, 5, S 181, B 45, CCSL sur, 450 ft from n and 150 ft from e line.

CHAMBERS COUNTY — Bashara Oil Co., Houston, Tarbutton 1, 2, H. Griffith sur, 431 ft w of center of e line.

CHEROKEE COUNTY—Mid-Kansas Oil & Gas Co., Shreveport, La., M. M. Cross, 117, 9, E. B. Foulks sur, 537 ft from w and 1540 ft from n line.

COLEMAN COUNTY—Centennial Oil & Gas Co., Goldsboro, N. D. Newton, 300, 6, No. 519 San Augustine sur, 2375 ft from e and 2275 ft from s line.

FISHER COUNTY — Texas Co., Wichita Falls, J. T. Johnson, 156, 1, S 72, B 1, H&TC sur, 1160 ft from e and 1978 ft from s line.

FAYETTE COUNTY—A. D. Becker, Carmine, Fee, 87, 1, Williamson sur, 972 ft from n and 700 ft from w line.

GREGG COUNTY—H. S. Moss, Dallas, F. Marshall, 39, 4, M. Van Winkle sur, 150 ft from n and w lines. Rajo Oil Corp., Ft. Worth, A.Vaults, 24, 1, G. F. Penn sur, 115 ft from e and 300 ft from s line. Silver Star Oil Co., McAlester, Okla., Knights of Tabor, ½, 1, L. B. Outlaw sur, 46 ft from e and 170 ft from s line. Snoddy, 3, 1, W. J. Castleberry sur, 262 ft from e and 124 ft from s line. Vierson & Kingwood Oil Co., Okmulgee, Okla, Geo. Muckelroy, 30, 2, Jno. Caruthers sur, 163 ft from n and 160 ft from e line. H. E. Wrenn, Marlin, A. S. King, 79, 1, W. P. Chisum sur, 150 ft from s and e lines. Rowan & Bristow, San Antonio, W. A. Moore, 28, 2, D. Moore sur, 75 ft from n and 300 ft from w line. H. R. Smith Inc, Luling, D. M. Peterson, 6, 2, M. Van Winkle sur, 150 ft from n and 260 ft from e line. Wells & Gann Drilling Co., Tyler, G. Johnson, 5, 2, M. Van Winkle sur, 150 ft from n and 151 ft from e line. Imperator Oil Corp., Dallas, J. M. Christian, 4, 1, G. W. Hooper sur, 287 ft from n and 166 ft from e line. Marine Corp., Dallas, L. D. Crim, 30, 3, W. P. Chisum sur, 330 ft from n and w lines. J. G. Beard, Duncan, Okla., Fuller, 67, 2, M. Alexander sur, 330 ft e of center of w line. Hill, Miller & Hill, Mineola, A. B. Geppert, 8, 1, J. M. Morris sur, 379 ft from e and 129 ft from s line. B. R. McLemore, Longview, H. Adkins, 1½, 1, D. Dainwood sur, 51 ft from w and 900 ft from s line. L. D. Alison, Shreveport, La., R. T. Dudley, 4, 1, I. Baity sur, 187 ft from w and 275 ft from s line. Mrs. W. C. Hurst, Longview, J. H. Alexander, 3, 1, D. Sanchez sur, 123 ft from w and 264 ft from s line. Gulf Prod. Co., Houston, R. H. Still, 189, 2, Jno. Wilkinson sur, 330 ft from n and w lines. S. Hilburn, E, 274, 13, Jno. Wilkinson sur, 330 ft from n and e lines. W. Holt, 223, 6, Jno. Blair sur, 859 ft from e and 330 ft from s line. A. Spear, 81, 14, W. P. Chisum sur, 330 ft from w and 918 ft from s line. A. A. King, 55, 2, J. Moffitt sur, 330 ft from s and e lines. Lacy-Snider, 107, 6, W. H. Castleberry sur, 330 ft from n and e lines. M. F. Barker, 74, 2, M. Dillard sur, 330 ft from s and e lines. F. M. Fanville, 100, 3, Wm. Tyndale sur, 503 ft from w and 330 ft from s line. Shell Pet. Corp., Dallas, F. W. Willoughby, 57, 5, M. Van Winkle sur, 150 ft from e and 330 ft from s line. M. J. Register, 51, 1, D. Dainwood sur, 370 ft from n and 452 ft from e line. G. H. Slaton, 114, 5, G. W. Hooper sur, 700 ft n of No. 1. N. Jobe, 60, 2, P. W. Warraner sur, 3161 ft from s and 365 ft from e line. M. H. Bivins, B, 120, 2, W. P. Chisum sur, 330 ft from e and 962 ft from s line. M. H. Bivins, A, 80, 4, W. P. Chisum sur, 1118 ft from n and 330 ft from w line. J. Moore, 370, 6, Johnson & Tyndale sur, 200 ft from n and 330 ft from e line. W. W. Elder, 40, 11, M. Van Winkle sur, 730 ft from n and 300 ft from e line. B. Moore, 50, 1, J. Moseley sur, 150 ft from n and 330 ft from e line. Roeser & Pendleton Inc., Fort Worth, W. R. Nicholson, 94, 1, M. Mann sur, 150 ft from w and 330 ft from s line. Humble Oil & Refg. Co., Houston, D. Thomas, 59, 7, M. Van Winkle sur, 285 ft from e and 119 ft from s line. Stanolind Oil & Gas Co., Longview, J. C. Persons, 146, 12, W. H. Castleberry sur, 200 ft from n and 1150 ft from w line. J. W. Akin, 80, 1, W. H. Castleberry sur, 330 ft from s and e lines. Amerada Pet. Corp., Tulsa, Okla., Continental Bk. 98, 2, H. H. Edwards sur, 750 ft e of No. 1. D. B. McPherson, 40, 4, W. H. Castleberry sur, 330 ft from n and e lines. Arkansas Fuel Oil Co., Shreveport, La., J. A. Whitaker, 75, 5, C. H. Alexander sur, 891 ft from n and 330 ft from e line. Atlantic Oil Prod. Co., Dallas, J. W. Bacle, 30, 2, G. W. Hooper sur, 330 ft from n and w lines. W. T. Burnside, 230, B4, F. W. Johnson sur, 990 ft from n and e lines. Lynn & Rohrgack, Gladewater, S. Kay, 2, 1, L. J. Rigsby sur, center. Republic Prod. Co., Houston, Wm. Clayton, 60, 2, L. B. Outlaw sur, 210 ft from n and e lines. F.H.E. Oil Co., Fort Worth, J. Flemister, 37, 5, G. W. Hooper sur, 1837 ft from w and 330 ft from s line. Prairie Oil & Gas Co., Ranger, J. W. Akin, 100, 3, W. H. Castleberry sur, 330 ft from w and 380 ft from s line. California Pet. Co., Shreveport, La., J. M. Tuttle, 25, 1, W. H. Castleberry sur, 200 ft from e and 1461 ft from s line. Deep Rock Oil Co., Tulsa, Okla., H. F. Pritchard, 110, 3, F. W. Johnson sur, 1598 ft from n and 330 ft from e line. Tidal Oil Co., Fort Worth, A. F. Shepperd, 107, 6, T. Allen sur, 1502 ft from e and 330 ft from s line. W. E. Jones, 80, 5, C. W. Hooper sur, 300 ft from w and 330 ft from s line.

GUADALUPE COUNTY—Luling Oil & Gas Co., San Antonio, J. D. Brown, 63, 1, C. Wall sur, 160 ft from n and 450 ft from e line. Humble Oil & Refg. Co., Houston, S. E. Denman, C, 140, 3, Wm. Arrington sur, 700 ft from w and 1452 ft from s line.

GONZALES COUNTY — Nassamer, Gorden & Waldrop, San Antonio, B. Botts, 320, 2, S 6, B 56, Gonzales sur, 2500 ft from e and 650 ft from s line.

HOWARD COUNTY—R. J. Wallace, Colorado, A. M. Bell, 60, 1, S 12, B 30, T&P sur, 660 ft from s and e lines.

PALO PINTO COUNTY—Palo Pinto Oil & Gas Co., Strawn, C. E. Allen, 2½, 1A, lot 6, H. Bird sur, 150 ft from n and e lines of blk. 20.

PECOS COUNTY—Black & Dittman, Pecos Valley Oil, 40, 1, S 34, B 3, H&TC sur, sw corner.

RUSK COUNTY—H. L. Hunt, Tyler, A. B. Wooley, 53, 3, F. Cordova sur, 330 ft from w and 345 ft from s line. Harris & Russell, Henderson, T. W. Harris, 40, 1, W. C. Davis sur,

(Continued on page 66)

# Wildcat Reports from All Sections

▼ ▼ ▼

## KANSAS

SUMNER COUNTY — Trees Oil Co. & Shell's Springate 1, ne se sw, 6-34-2e, dr by 10-in, td 2285.

KINGMAN COUNTY — Panhandle Drlg. Co.'s Wetheall 1, c se nw sw, 20-28-10w, 15-in, 100 ft, casing trouble.

HARVEY COUNTY—Liggett et al's Davis 1, c sw se ne, 7-24-1e, sd 2500 ft.

GREENWOOD COUNTY—Ward McGinnis' Burk 1, sw ne, 10-24-8e, dr 1125 ft.

FINNEY COUNTY—National Refg. Co.'s Wells 1, sw c, 12-23-30w, 8-in 3765 ft, sd 3805 ft.

RENO COUNTY—Jarvis & Wright's Rainbow 1, nw nw se, 33-22-7w, rig.

McPHERSON COUNTY—Twin Drlg. Co. et al's Farver 1, sw se, 16-20-1w, td 2950 ft, casing trouble.

BARTON COUNTY—Skelton Oil's Ott 1, c se se, 16-19-14w, sd 3375 ft, casing trouble.

RICE COUNTY—Gypsy's Steckle 1, c ne nw, 31-19-10w, 8-in 2605 ft, dr 2715 ft.

RUSH COUNTY—Shelton-Schleagel's Brock-Hartman 1, sw se nw, 4-18-12w, sp and sd.

MORRIS COUNTY—Urschell et al's Bersuch 1, c nw se nw, 10-17-7e, td 915 ft, fsh bit.

ELLSWORTH COUNTY—Raymond Gear et al's Sauberli 1, c sw se, 29-16-9w, sp and sd.

MORRIS COUNTY—Kastle et al's Furney 1, ne se, 16-16-8e, sp. Hankenson et al's Cessnum 1, sw se, 24-17-9e, sd 2625 ft.

RUSSELL COUNTY—Tom Palmer et al's Pasek 1, c se, 3-14-11w, hfw 3070 ft, td 3130 ft, ur 8-in.

OSAGE COUNTY—Riggs-Smith's Wood 1, c se nw, 31-14-15e, td 2200 ft.

RUSSELL COUNTY—James Brennan's Walz 1, cwl e½ nw 29-13-11w, rig. Twin Mounds Oil's Weis 1, c w½ ne nw, 30-13-4w (owd), td 2710 ft, sd.

DICKINSON COUNTY—Severs et al's Livingood 1, ne sw, 13-13-2e, sd 4752 ft.

SHERIDAN COUNTY—Flo et al's Shoemaker 1, se sw sw, 27-27-26w, td 4135 ft, fsh 6-in.

WASHINGTON COUNTY — Sincox's Penwell 1, nw se nw, 16-3-3e, sd 1720 ft.

RAWLINS COUNTY—Danciger et al's Unknown 1, sw c, 3-2-35w, 6-in 3875 ft, hfw 3925 ft, sd.

## OKLAHOMA

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Bros.'s Forbes 1, ne c se nw nw, sd 1420 ft.

KAY COUNTY—T 27n, R 2e, Sec. 9, Mummer et al's Sornick 1, nw c se, sd 3693 ft.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden's Vollmer 2, ne c se ne sw, sd 5640 ft.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, J. V. Bailey's Acre 1, c sw ne, sd 5502 ft.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer's White 1, se c nw, sd 5850 ft.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, Washoma's Phillips 1, c nw sw, sd 5120 ft.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healey et al's Quier 1, se c sw, sd 3970 ft.

KAY COUNTY—T 28n, R 3e, Sec. 24, Atkinson et al's Hays 1, se c ne, dr 2560 ft.

PAWNEE COUNTY—T 20n, R 5e, Sec. 6, W. A. Rookstool's Berry 1, nw c ne sw, sd 1951 ft.

LINCOLN COUNTY—T 17n, R 5e, Sec. 36, Mote et al's School land 1, nw c, c.o. 1160 ft. T 14n, R 3e, Sec. 2, Hilton Phillips et al's Phillips 1, sw c nw, dr 1100 ft.

CREEK COUNTY—T 14n, R 7e, Sec. 18, Cal Cul's Holleyman 1, se ne se, fsg 705 ft.

LINCOLN COUNTY—T 13n, R 6e, Sec. 8, Atlantic's Beebee 1, ne sw sw, dr 2500 ft.

PITTSBURG COUNTY—T 7n, R 14e, Sec. 34, Tape Oil Co.'s Fulsom 1, se c, c.o. 1200 ft.

LATIMER COUNTY—T 6n, R 19e, Sec. 16, P. English's Weaver 1, c nw se, sd 1542 ft.

### ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; t‡—sal water; †—junked and abandoned; ¶—million feet of gas; abn — abandoned; bbls—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd — shut down; sdtr — sidetracking; sp — spudding; sr—straight-reaming; std — standardizing; sw — salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

PITTSBURG COUNTY—T 5n, R 14e, Sec. 9, W. B. Hailey's Coal land 1, ne c sw, c.o. 820 ft.

ATOKA COUNTY—T 1n, R 13e, Sec. 31, Campbell's Baird 1, nw c ne sw, abn lcn.

OKLAHOMA COUNTY—T 12n, R 4w, Sec. 17, C. F. Cuniff's St. Joseph 1, sw c ne sw se, sd 6700 ft.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 19, Bunte et al's Bruner 1, se c nw rig.

POTTAWATOMIE COUNTY—T 6n, R 4e, Sec. 2, Mid-Continent's Farmer 1, se c sw nw, sand 4418-31 ft, 3500 ft wtr; pb 3459-62 ft, set pipe.

ROGER MILLS COUNTY—T 12n, R 24w, Sec. 23, Ute Oil Co.'s Williams 1, c sw, sd 5150 ft. T 11n, R 26w, Sec. 4, J. J. Rook & Palmer Davis 1, c nw ne (owd) dr 3420 ft.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey's Robinson 1, c ne nw, sd 150 ft.

WASHITA COUNTY—T 9n, R 17w, Sec. 23, Miley Pet. Corp.'s Chapman 1, ne c sw, rig. T 8n, R 19w, Sec. 29, Cooper & Terhune's Blocker 1, nw c, sd 2757 ft. T 8n, R 18w, Sec. 21, Burns & Prince's Dock 1, sw c, sd 1265 ft.

GREER COUNTY—T 7n, R 22w, Sec. 1, Roy Good et al's Cliffel 1, nw c, sand 1462-65 ft completed for ¶5 gas. T 7n, R 21w, Sec. 23, French et al's Murphy 1, sw c nw se, sd 1654 ft.

CADDO COUNTY—T 5n, R 9w, Sec. 6, Mid-Kansas & Ramsey's Culp 6, nw c ne, td 10,079 ft small show oil and gas; pb to 6780 ft shot 80 qts 6750-80 ft no show, pb to 6094 ft, ripped pipe at 6077-89 ft, show ¶10 gas and 20 bbls salt water.

COMANCHE COUNTY—T 4n, R 12w, Sec. 33, Snodgrass et al's Willetts 1, ne c nw, sd 515 ft.

GARVIN COUNTY—T 2n, R 2w, Sec. 24, Malernee's Phillips 1, ne c sw, sd 4800 ft.

COAL COUNTY—T 1s, R 8e, Sec. 2, Rabial Oil's Richardson 1, ne c nw, sd 1450 ft.

ATOKA COUNTY—T 3s, R 10e, Sec. 18, Brookshire et al's Quinn 1, nw c, sd 1720 ft.

## SOUTHERN CALIFORNIA

CALABASAS—L. W. Rucker's No. 1, 26-1-17, sd 750 ft.

EL NIDO—Mohawk Pet. Co.'s Pavey 1, 29-3-14, dr gray sand 5970 ft, gas and oil showing between 5940-5950 ft.

HERMOSA BEACH — Corniel Oil Corp.'s No. 1, sd 3100 ft. Westwood Oil Producers' No. 2, co 2145 ft, may deepen.

LYNWOOD—W. L. Jones' Graham 1, 31-2-12, dr shale 1070 ft.

MONTEBELLO — Wardell and Menichini's No. 1, 7-2-11, rig sd.

NEWPORT—Ajax Pet. Co.'s B. G. 1, 16-6-10, dr gray sand 7018 ft. Orange County Refining Co.'s No. 5, sd 1825 ft.

OLINDA—Graham-Loftus Oil Co.'s No. 1, plugged to 4100 ft, for test of upper showing td 9284 ft.

OCEAN PARK—Hines Pet. Corp.'s Happy Days 1, 8-2-15, sd 7405 ft.

PLAYA DEL REY—Cooperative Pet. Co.'s No. 1, 26-2-15, rig.

WILMINGTON—Ranger Pet. Corp.'s Watson 2, 21-4-13, pumping 35 bbls 14 gravity oil, td 3784 ft.

## NORTHERN CALIFORNIA

### KERN COUNTY

ANTELOPE VALLEY—Meridian Oil Co.'s No. 1, 11-9-15, sd 3970 ft.

BUTTONWILLOW — Graham-Loftus Oil Co.'s Carmel 1, 20-27-22, dr shale 6100 ft. General Pet.'s Morris 1, will run tubing and make test, td 2615 ft. Milham Exploration Co.'s Crites 1, 8-28-23, sd 4496 ft; Kern 2, 8-28-23, sd 2702 ft; Kern 10, 5-28-23, coring shale 2485 ft.

DEVIL'S DEN—Cumberland Oil Co.'s Cumberland 2, 17-26-18, fsh 3225 ft.

EL TEJON—Descanso Oil Co.'s Tejon 1, 31-11-19, dr shale 1100 ft.

LOST HILLS—All deep tests in this field are sd.

McKITTRICK—T. H. Purman's No. 1, 22-29-21, dr shale 3035 ft. Welport Oil Co.'s No. 8, 26-29-21, dr oil sand 1085 ft.

SEMITROPIC — Fullerton Oil Co.'s Core Hole C, 25-27-23, dr hard sand 925 ft.

WEED PATCH—Osborn-Colter's Duff 2, 15-30-29, pumping 15 bbls heavy oil, td 2006 ft. Sy Wicker's No. 6, 12-30-28, sd 3865 ft.

WHEELER RIDGE—Barnsdall's K. C. L. 1, 15-11-20, dr hard sand 3470 ft.

### SANTA BARBARA COUNTY

CARPENTERIA—Texas' Core Hole H-1, 34-4-25, lcn.

GOLETA—General Pet.'s Hollister 1, 10-4-29, sd 380 ft; More 3, 22-4-28, plugged to 4375 ft, flowing gas on production test. Strickland and Tippett's Duncan 1, 19-4-27, sd 4691 ft.

LOS ALAMOS—Barnsdall's Careaga 1, 31-8-33, dr shale 1940 ft. N. S. Wilson's Orena 1, 2-7-33, sd 3450 ft.

SANTA MARIA—O. C. Field Gasoline Co.'s Norswing 1, 8-9-33, plugged to 5200 ft, td 5568 ft. Western Gulf's Bradley 1, 5-9-33, fsh for whipstock, td 8566 ft.

SANTA ROSA ISLAND—Standard Oil Co.'s No. 1, new lcn not official, moving in equipment and building roads.

### VENTURA COUNTY

CONEJO—American Oil Co.'s Powell 1, 33-2-20, dr hard sand 1565 ft. Sycamore Oil Co.'s Hansen 1, 24-1-20, dr shale 775 ft. Triunfo Oil Co.'s No. 1, 24-1-19, dr shale 3000 ft.

HOPPER CANYON — Bardeen Oil Co.'s Lankershim 2B, 13-4-19, rigging rotary.

OJAI—A. N. Macrate's Cosmon 1, 27-4-23, lcn.

PIRU—Torrey-Ventura Oil Co.'s No. 1, 32-4-18, 13⅜-in cas cmt 880 ft, td 930 ft, will drill out.

RINCON—Woodruff Oil Co.'s Lomas 1, 4-3-24, new lcn.

SANTA PAULA — San Pedro-Pt. Fermin's Kellerman 1, 13-4-21, pumping 150 bbls 35 gravity oil, td 3845 ft.

SOUTH MOUNTAIN—H. H. Bell's Lemon 1, 22-3-21, oil sand 2270 ft.

### MISCELLANEOUS

KINGS COUNTY — Knudsen & Schmidt's Avenal 1, 36-23-17, dr gray sand 5678 ft. Eagle Oil & Gas Co.'s No. 1, 15-23-20, co 1125 ft. Investment Equipment Co.'s No. 1, 18-22-19, rig. Irma Investment Co.'s Watson 2, 7-23-20, co 1225 ft. Tulare Basin Gas Co.'s Goodfellow 1, 2-23-19, dr shale 1112 ft. Valley Exploration Co.'s Dudley 1, 12-23-19, dr out cmt 902 ft.

MONTEREY COUNTY—Pacific Inland Oil Co.'s No. 1A, 19-23-15, sd 2340 ft.

NAPA COUNTY—Napa Oil Co.'s Griffith 6, 7-8-3, 8⅝-in cas cmt 2850 ft.

SAN JOAQUIN COUNTY—Union's T. L. W. 1, 14-3-16, dr shale 4790 ft.

SAN LUIS OBISPO COUNTY—Emerich Oil Corp.'s No. 1, 13-28-12, dr shale ,775 ft. Indian Dome Oil Co.'s No. 1, 26-31-12, sd 3375 ft.

TULARE COUNTY — Gravity Exploration Co.'s Hudson B-1, 11-24-23, rig.

## ARKANSAS

CLAY COUNTY—S. C. Jeffus, Tr.'s Underwood 1, 4-20-8e, sd 1260 ft.

CLEBURNE COUNTY—Frank S. Craver's Donithan Lbr. Co. 1, 33-11-9, sd 3470 ft.

CLEVELAND COUNTY—Crum & Stilwell's Bell 1, 10-10s-12w, rigged up and sd.

COLUMBIA COUNTY—Kendall Oil Co.'s Fullenwider & Kitchen 1, ne ne 13-17-22, sd 814 ft.

DALLAS COUNTY—Zepp O&G Co.'s Hillman 3, nw ne 20-10-13, lcn. Jno. James, Tr.'s Fordyce Lbr. Co. 1, 11-9s-15w, sd 2520 ft.

DREW COUNTY—Co-operative Dev. Co.'s Ogles 1, ne nw 35-15-5, sd 1890 ft.

HOT SPRINGS COUNTY—Starr Oil Co.'s Cunningham 1, 11-5-16, 12½-in cas 62 ft, sd 1262 ft shale and bldrs.

LINCOLN COUNTY—L. B. Cook, Tr.'s McGehee Pltg. Co. 1, 5-8s-7w, sd 2985 ft.

LITTLE RIVER COUNTY—Fay Roberts Oil Co.'s Russell 1, 25-12-29, lcn.

LOGAN COUNTY—M. W. Greesom's Parks 1, 21-8-24, sd 1309 ft. J. H. Flowers' White 1, 13-5-26, sd 3610 ft.

MILLER COUNTY—W. E. Noel et al's Dickson 1, 11-20-27, sd 1955 ft. Fitzwater et al's E. L. Beck 1, sw se 33-15-26, sd 2220 ft.

OUACHITA COUNTY—W. H. Copenhaver et al's Berg 1, se se 13-15-17, 10-in 42 ft, sd 2011 ft.

PIKE COUNTY—Kentucky-Ark. O&G Co., Inc.'s Tilyou 1, 26-8-24, ta 2920 ft. East 1, 13-9-23, 10-in 288 ft, dr 1812 ft hard rock.

PRAIRIE COUNTY—Powell Creek O&G Co.'s Kloss 1, ne nw 3-4n-6w, partly rigged up and sd.

SCOTT COUNTY — Heavener O&G Co.'s Reser 1, 36-4-26, sd 1436 ft. Waldron O&G Co.'s J. G. White 1, 17-3n-29w, sd 1860 ft (sec hole.)

SEBASTIAN COUNTY—M. W. Greesom's Spears 1, 9-7-29w, sd 1536 ft.

SEVIER COUNTY—Tri-State O&G Co.'s Bank of DeQueen 1, 34-8s-32w, sd 950 ft.

UNION COUNTY — Southern Prod. Co.'s Wingfield 1, 16-19-15, sd 2608 ft. Lion O. R. Co. et al's Guy P. Hayes A-9, ne ne 4-16-15, elev 96 ft, circulating with fresh water preparatory to resume, td 7255 ft, salt. Drillers Oil & Dev. Co.'s Pickering 1, 1-17-16, wosr 2134 ft. Modisette et al's Union Sawmill 1, sw nw 13-18-13, 10-in 167 ft, top sand 2266 ft, tested sw, slight oil show 2266-80 ft, sd 2280 ft. Hill et al's Barnes 1, ne ne 21-19-15, dk.

WASHINGTON COUNTY—C. H. Willoughby's Jones 1, 34-16-30, sd 2150 ft.

YELL COUNTY—T. Luckett's Balcon 1, 36-7-12, ta 5640 ft.

## FLORIDA

DADE COUNTY—East Coast Oil & Nat. Gas Co.'s Warick 1, 12-55s-40e, dr 5188 ft, hd dolomitic lime. Miami, Fla., Oil Co.'s Chevalier Corp. 1, 19-54s-35e, sr at 4570 ft, td 4600 ft, gray lime.

LEVY COUNTY—Suwanee Pet. Corp.'s Sholtz 1, lcn not given, arr res, td 4010 ft.

WALTON COUNTY—Oil City Corp.'s Walton L. & T. Co. 1, ne nw 12-1n-19w, cor below 4100 ft. Calumet Co.'s Walton L. & T. Co. 1, se se ne, 7-1n-17w, dk pat.

## NORTH LOUISIANA

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| SABINE PARISH— | | |
| O. A. Gautier et al, Meshell 1, 30-8-12 | Dry | 2599 |
| Pelican Nat. Gas Co., Buckley 1, 6-7-10 | Dry | 2804 |
| O. J. Baird, Duggan 1, 14-7-11 | Dry | 2600 |
| Roy Baker, Sabine 1, 11-7-12 | Dry | 2548 |

BOSSIER PARISH—H. I. Morgan et al's Strange 1, ne sw sw 23-19-11, 10-inch 123 ft, 6-inch 1721 ft, coring oolitic sandy lime 1767 ft. Plain Dealing O&G Co.'s Nattin 1, 15-22-14, 4½ cas 2882 ft, 150 ft oil in hole, wosr 2890 ft. Dr. Hankins et al's Newell 1, 12-19-11, sd 1730 ft.

CADDO PARISH—Pelican Nat. Gas Co.'s Cooper 1, 29-18-14, ta 3648 ft, red shale and lime. Louanna O&G Co., Inc.'s, Hammock 1, se se 32-19-16, elev 258 ft, top bro chalk 1350 ft, dr 1555 ft chalk. Calatex O&G Co.'s Hudson 1, 8-16-16, sp 10-inch 80 ft, dr 250 ft.

CALDWELL PARISH—Monroe Pet. Corp.'s Burton 1, 36-12-2e, sd acct titles, 2986 ft. Carter Bell et al's Taylor 1, 17-14-4e, 12½ cas 110 ft, sd 1100 ft acct high water.

DE SOTO PARISH—A. R. Smith's Horn 1, nw se 15-12-16, sp and sd. Rellit O&G Co.'s Cannon Hrs. 1, 12-11-16, sd 1965 ft. E. T. Oakes' Johnson 1, 30-13-15, dr 3210 ft sandy shale. Walters & Nicholson's Jim Guy 1, 3-11-13, sd 1260 ft. DeSoto Dev. Co.'s Nickie 1, sw se 7-13-12, dk.

NATCHITOCHES PARISH—C. M. Talley et al's Talley 1, 29-11-10, sd 1380 ft. J. W. Cooper et al's Cooper 2-A, 35-11-10, sd 1515 ft. Gerson et al's Smith Island 1, sw nw sw 11-10-8w, 12½ cas 90 ft, gas and sw flow killed, arr skid over for new hole, td 585 ft sand. R. A. eKator's Stephens 1, 25-10-6w, 12½ cas 178 ft.

OUACHITA COUNTY—S. C. Wilson et al's W. L. Williams 1, sw se 5-16-1e, 12½ cas 180 ft, dr 2050 ft.

RICHLAND PARISH—National Gas Co.'s Singletary 1, 20-18-7e, sd 2515 ft.

SABINE PARISH—J. J. Kean's Belton 1, nw se ne 31-9-13, 8-inch cas 1590 ft at top chalk, base chalk 2115 ft, dr 2805 ft gumbo. R. L. Gay, Tr.'s, Long-Bell A-1, nw nw 10-8-13, elev 265.4 ft, top Glen Rose 4204 ft (corrected depth), recovered 6 ft of oolitic honeycombed lime saturated with light oil, in 14 ft core from 4775-89 ft, arr sr to set cas, td 4789 ft oolitic lime (Glen Rose). Coats Pet. Co.'s Stille 1, nw se 35-8-13, lcn; Hill 1, se se 35-8-13, lcn; S. Martinez 1, se ne 3-7-13, lcn; F. Martinez 1, ne nw 11-7-13, cemtd 6-inch 2036 ft, td 2046 ft; F. Martinez 2, 11-7-13, dk; G. Martinez 1, sw sw 2-7-13, dk; Patterson 1, sw sw 2-7-13, sp 10-inch 100 ft, dr 2000 ft; Mansfield Hdw. 1, sw se se 36-8-13, 10-inch 100 ft, 6-inch 2070 ft, dr 2200 ft. Hudson & Bird's Walden 1, sw ne 26-8-11, elev 290 ft, 10-inch 100 ft, top marl 2355 ft, top bro chalk 2440 ft, sd 2454 ft chalk. Zeke Lohman's McCormick 1, ne sw 2-7-11, fsh ds 1750 ft. Roy Baker's Sabine 1, 11-7-12, did not pump, dry abn, td 2548 ft chalk. Gautier et al's Meshell 1, 30-8-12, did not pump, dry abn, td 2599 ft. Loring Oil Co.'s Bowman-Hicks 18, sw nw 15-7-12, elev 264.1 ft, 15½ cas 100 ft, 9¼ cas 3950 ft, top marl 2482 ft, top chalk 2537 ft, top lower Cretaceous 3098 ft, sdtr at 4350 ft after setting 1875 sacks cement to shut off sw flow 4300-4334 ft, dr 4475 ft lime. Root Ref. Co.'s Peterson 1, sw ne 34-7-13, 10-inch 40 ft, arr res 2243 ft. G. M. LeGrand's McGough 1, 3-8-10, dk. O. J. Baird's Duggan 1, se nw se 14-7-11, 6-inch 2410 ft, dry abn, td 2600 ft. W. F. Lacey's McNeely 2, ne ne 14-7-11, 10-inch 100 ft, 6-inch 2451 ft. Pelican Nat. Gas Co.'s Buckley 1, sw sw 6-7-10, 6-inch 2438 ft, dry oil show 2554 ft, dry abn, td 2804 ft. Beene et al's Ezernack 1, sw ne ne 2-7-13, dr 1500 ft. Farrell et al's Haley 1, 6-7-12, rig. C. H. Tuttle's Byrd 1, nw nw 7-7-10, 10-in 102 ft 6-in 2442 ft dry at 2512 ft blg to test 2565 ft. Service Royalty Co.'s Gardner B-1, sw nw 7-7-10, 10-in 102 ft 6-in 2460 ft dry wo 2571 ft. Baird & Stone's McNeely 1, 14-7-11, sp 10-in 100 ft dr 1000 ft. J. E. Smitherman's Smith 1, sw nw 7-7-10, 10-in 100 ft cemt 6-in 2518 ft blg to test 2595 ft. Ohio Oil Co.'s Bowman-Hicks 14, nw sw 3-7-12, 10-in 129 ft 6-in 2326 ft dr 2400 ft. Frank Foster, Inc's Stevens 1, ne nw nw 20-9-11, sp 10-in cas 100 ft. W. M. Coats' McNeely 2, nw ne 14-7-11, dk. Stovall Drilling Co.'s Nulton 3, se ne 2-7-13, lcn. Baird & Hunter's Petty 1, nw se 11-7-11, dk. H. W. Perritt's Brown 1, sw se 6-7-10, rig. Texas Co.'s Giaque B-1, ne se 10-7-13, dk.

TENSAS PARISH—A. R. Willis' Curry 1, 39-11-12e, sd 3545 ft. Stovall Drilling Co.'s Miller 1, ne sw 10-10-10e, lcn.

## MISSISSIPPI

CHICKASAW COUNTY—Hightower & Golson's Fleming 1, 20-13-3e, ta 1640 ft.

HINDS COUNTY, (Edwards Dist.)—Miss.-Minn. Oil Co.'s Edwards Land Co 1, sw ne 23-6n-4w, rig.

JASPER COUNTY, (Bay Springs Dist.)—Bay Springs Pet. Inc's J. H. Keyes 1, nw ne 21-2n-10e, sd 3171 ft. Wilcox.

LAMAR COUNTY, (Purvis Dist.)—Stauffer & Kouri, Tr's Bond 1, se ne 18-2n-14w, mov in rig.

LOWNDES COUNTY — Lowndes County O&G's Carr Est 1, ne nw 34-17n-16e, rig.

MONROE COUNTY, (Amory Dist.)—Amory Dev. Co.'s Bourland 1, 2-15-19, ta 3007 ft brown sand. P. J. McAlpine's Cowart 1, 2-12s-19w, 5 3/16 cas 3420 ft ta 3793 ft brown sandy lime.

NEWTON COUNTY, (Newton Dist.)—Dalton Dev. Co.'s Majure 1, se se 25-6n-11e, 10-in 295 ft sd 1420 ft.

NOXUBEE COUNTY, (Macon Dist.)—Thompson O&G Synd's Donahue 1, se ne 25-16n-17e, elev 280 ft 12½ cas 20 ft 8¼ cas 1605 ft hf alkali water, wo td 1735 ft. Ames 1, nw nw 24-16-18e, dk pat.

RANKIN COUNTY —, (Jackson Dist.)—Atkisson & Dyer's Valentour 1, nw nw 18-5-2e, elev 270 ft sd wo cas 2428 ft. Majestic O&G Co.'s Elton Lbr. Co. 1, 10-4n-3e, dk.

SCOTT COUNTY—Culley et al's Owen 1, 2-8n-9e, dk.

SHARKEY COUNTY, (Nitta Yuma Dist.—United Gas Pub Serv Co.'s Lenhart 1, sw se 14-14n-6w, elev 100.6 ft cemtd 15½ cas 245 ft.

WARREN COUNTY, (Vicksburg Dist.)—Eagle Lake O&G Co.'s Kiger 1, sw ne 9-18-2e, sd 2607 ft.

WEBSTER COUNTY—P. J. McAlpine's Henley 1, se nw 15-21-11e, cored gravel, sd 1800 ft.

## ALABAMA

MADISON COUNTY—Tennessee Valley O&G Co.'s Fee 4, 1-4s-2e, no report.

SUMTER COUNTY, (Livingston Dist.)—Forked Lightning O&G Co.'s Nixon 1, 30-20-2w, dk.

WASHINGTON COUNTY—Hobson et al's Hobson Bros 1, 9-8-2w, ta 1450 ft. Oscar Brown's U. S. Land & Cotton 2, 23-3-2w, ta 700 ft.

## TENNESSEE

CHESTER COUNTY—Gilmore et al's Scott 1, sand 558-570 ft 10-in 552 ft dr 735 ft black shale.

DECATUR COUNTY—Chester County O&G Co.'s Montgomery 1, arr hes td 2511 ft.

## NEW MEXICO

BERNALILLO — Norrins Realty's Pajarito Grant 1, 29-9n-2e, dr in wash 1210 ft last report.

CHAVES—Warman Oil Trust's Evans 1, 15-14s-25e, dr 702 ft.

DE BACA—Matador Oil Co.'s Wood 1, ne 6-4n-20e, cemt 5 3/16-in at 3495 ft, td 3500 ft. Landowners Oil Co.'s State 1, ne 16-1s-27e, resum 4680 ft after install new dr line.

DONA ANA—Middle Sts. O&G Co.'s Boretzi 1, 14-26-5e, sp and sd.

GAUDALUPE—N. M. Prod. & Ref. Co.'s McMillan 1, 24-5n-16e, ur 8¼-in, td 3875 ft.

LEA—Baker Oil Co., Inc., sw nw 15-13s-33e, lcn.

LUNA—Angelus O&M Co.'s State 3, se 30-21-10-, stand cemt, td 6171 ft.

OTERO—Ernest et al's 1, se 20-25s-7e, stand 1445 ft. Pasotero Oil Corp.'s Evans 1, sw 32-5s-30, rig.

RIO ARRIBA—Berrenger et al's Hartman 1, ne 8-29n-7w, sd 825 ft. Governador Oil Co.'s 1, 15-29n-7w, dr 2005 ft, carry 5 3/16-in.

ROOSEVELT—Peterson et al's Good 1, 32-5s-30e, rig up.

SAN JUAN—Kutz Canon O&G Co.'s Day 1, se 20-28n-10w, sd 3742 ft. Rio Grande Dev. Co. 2, 9-26-11, sd 1771 ft. Continental Oil Co.'s Rattlesnake 24, 1-29n-19w, fsh 6620 ft. San Juan Leaseholds' Bowman 3, nw 30-30-15, sd 2685 ft. Williams et al's Stallings 1, sw 17-25-n-15w, stand 150 ft.

SANTA FE—Jones, Owsley et al, 5-10n-9e, sd 435 ft. N. M. Securities Co., sw 6-10n-7e, sd 480 ft.

SAN MIGUEL—Starr Oil Co.'s Adams 1, ne 25-17n-16e, fsh pipe 5095 ft. Hershfield Dev. Co.'s Cabra Springs 1, ne 21-12n-22e, dr 1700 ft.

## COLORADO

ADAMS—Hills Dome Lease Dev. Co., se 27-3s-54w, wait for fuel to res, td 3790 ft.

ARAPAHOE—McDeb Dr. Co.'s Fitzsimons 1, ne 7-4s-66w, run 4¾-in, td 5920 ft.

ARCHULETA—Oil City Pet. Co.'s Fitzhugh 1, sw 34-33n-1e, topped Lakota at 670 ft.

BOULDER—Julius Williams,' Degge 1, 6-1n-71, dr below 1250 ft. Ahlstrand et al's Woodley 1, nw 8-3n-70w, sd 565 ft.

ELBERT—Belmont Oil Co., sw 27-3n-64w, sd 3745 ft. Progressive O&L Co.'s Pease 1, se 27-10s-66, sd 3820 ft.

EL PASO—Gulf States Oil Corp.'s Carson 2, ne 10-16-66, sd 1126 ft.

GRAND—Oil Mineral Lands, Inc.'s McElroy 1, sw 14-2-81w, sd 545 ft.

JEFFERSON—Ruby Hill O&G Co.'s Braden

1, se 34-4s-59w, resum 4106 ft, 6⅝-in cemt 3950 ft.

LA PLATA—McGarr Pet. Co.'s Pinon Mesa 1, ne 34-33-12, rig up. J. W. Irwin & Co.'s Doescher 1, nw 29-33n-13w, sd 3175 ft. Phipps et al, sw 9-33-13, td 520 ft.

LARIMER—Mayer et al's Reed 1, nw 28-4n-69, ur 6⅝-in at 2500 ft, td 3100 ft. Natural Gas & Oil Co.'s Meade 1, se 17-4n-69w, sd 1900 ft. Colo. Prod., Inc.'s Foster-Motz 1, se se 17-4-69, cemt cave, sd 1435 ft. Colo. Prod., Inc.'s Hogsett 1, se ne 20-4-69, sp and sd. C. Leonard Smith's State 1, 36-12n-70, prep to res, td 760 ft. Poudre River Oil Co., se nw 34-8n-69w, co to res. Consolidated Drlg. Co.'s Maxwell 1-A, ne 25-8n-70, prep to res at 285 ft. Culter et al, se 4-4n-70, sp shallow test.

LINCOLN—Eastern Colo. Oil Corp.'s State 1, 36-14n-57w, co 60 ft off bottom at 3449 ft.

MOFFAT—Ohio Oil Co.'s Bogenschultz 1, se 9-6n-91, excellent gas show at 2781 ft, run 8¼-in to s.o.w from above and test.

MORGAN—Badger Creek O&G Co., sw 2-2-57, stand 1340 ft.

PARK—So. Park O&G Co.'s Milligan 1, se 13-8s-76w, co 2680 ft, after cemt cave. South Park O&G Co.'s Esche 1, ne 5-9s-76w, sd 2442 ft.

RIO BLANCO—California Co.'s Raven 1, se 20-2n-102, cemt 13⅜-in at 3575 ft.

ROUTT—Mid-Colo. Pet. Corp.'s Omholt 1, se 29-4n-97, sd 1700 ft.

WASHINGTON—Middlemist Oil Co.'s Middlemist 1, se 14-4-56, sd 1503 ft.

WELD—Retter Oil Co.'s Smith 1, 14-1n-68w, sd 1385 ft. Conoco's Gadbois 1, sw 24-6n-61w, shot, cleaning out, td 6701 ft. Greeley Oil Co.'s Gadbois 1-B, nw 25-6n-61w, showing for about 30 bbls per day.

## MONTANA

CARBON—Corbett Roy. Co., sw se 1-6s-23e, show oil at 1100 ft. Jack Creek O&G Co. 1, se 15-7s-23e, td 1325 ft. Ohio Oil Co.'s Kutchinski 1, 15-7s-21e, dr 1900 ft.

CARTER—E. T. Moorehead, sw 36-4s-57w, sd.

CASCADE—Buscher & Cassady's Johnson 1, se 19-22-3e, boiler on ground, td 1380 ft. Charles Merz et al's Sheffels 1, nw 4-21-4e, ur 8-in for wso, td 885 ft (corrected.)

FALLON—H. W. McDonald's 1, sw 28-8n-60e, 8¼-in cemt 1682 ft, co.

FERGUS—Melton Corp. 1, sw 24-21n-17e, dr 3100 ft last report; probably sd now. Landheim-Romunstad 2, ne 3-17n-20e, set 6⅝-in at 2116 ft, sd 2600 ft.

GALLATIN — Mont. Gas & Pet. Corp.'s Adams 1, 35-1n-2e, stand 527 ft. Gallatin Valley Oil Co.'s Haglund 1, sw 13-34-6w, sd 2539 ft.

GLACIER—Fulton Blackfeet Oil Co., ne 28-36-12w, dr 2910 ft.

GOLDEN VALLEY—Golden Valley Oil Co., 28-6n-22, dr 2865 ft.

LIBERTY—Northland O&G Corp.'s Yurman 1, sw 32-33-5e, sd 3790 ft for repairs. California Co.'s Ross 1, ne 3-33-6e, stand cemt 2608 ft.

MUSSELSHELL—Minn.-Flatwillow Pet. Co. 1, sw 7-11-31e, to res, td 2556 ft.

SWEETGRASS—Shoshone Cons., nw 23-2n-15e, strmmg around 5500 ft last report.

TETON—California Co.'s Sullivan 1, nw 34-28-7w, sd for winter, td 2810 ft. Earl Oil Corp.'s Gad 1, se 22-22-8w, sd 2850 ft, to res March 1.

TOOLE—Oregon Synd., se 20-36-2e, fsh lost bailer, td 2269 ft. Western Nat'l Gas Co., nw ne 26-37-4e, averaging 20 bbls per day from 1813 ft, will be drilled deeper in the spring.

YELLOWSTONE—Pan-American Oil Synd., 23-2s-24e, sd 2360 ft. Peter Antonioli, ne ne 21-2n-25e, td 2150 ft.

## WYOMING

CARBON—Midwest Refining Co.'s U. P. 27, 27-11-81, sd for winter. Prairie O&G Co.'s Bunker Hill 1, 29-27-87, sd for winter, td 6147 ft.

CONVERSE—John Ackard, se 24-33-72, sd 1820 ft.

CROOK—Northwestern Oil & Natural Gas Co., 6-54-60, sd 1585 ft for winter.

FREMONT—Wiebolt et al, 35-33-99, td 2715 ft. Ward O&G Co., 28-34-90, new lcn. Yellowstone Oil Co., sw 14-39-94, sd 1000 ft last report.

LINCOLN—Wyo. Prod. Co., 14-24-113, td 1700 ft.

NATRONA—Mutual Oil Synd.'s Midway 2, sw se 14-35-79, lcn. Summit Oil Co., 21-33-80, sd 1387 ft. Wyo. Imperial Oil Co., sw 13-33-79, rig up.

NIOBRARA—Fall River Roy. & Internat'l O&R Co.'s Joint Globe 1, 2-39-61, sd 600 ft.

WASHAKIE—Bales Oil Trust, nw 31-48-80, sd for winter at 1100 ft.

WESTON—Le Faivre Oil Synd., se 29-45n-68w, sd 1250 ft (corrected depth). Julius Peters et al's Weitzell 1, se nw 30-46-64, co at 3400 ft to dr 100 ft deeper. Stockade Anticline Synd., 32-45-60, sd. Gose Oil Synd.'s Gose 1, 28-47-65, sd 5050 ft.

## TEXAS GULF COAST

AUSTIN COUNTY—Grant et al's A. A. Chesley 1, Raccoon Bend, sd account high water.

BELL COUNTY—C. E. Grover's H. C. Hill 1, J. Barton sur, lcn 800 ft from w and 1600 ft from s lines.

BRAZORIA COUNTY — The Texas Co.'s Belcher 2, Manvel, prep to set cas td 5572 ft; Wm. Cave 2, Damon Mound, td 1865, set 10-in cas at 1315 ft. Layne-Texas Co.'s Wisdom 6, Damon Mound, dr out junk, td 3600 ft. W. D. Southerland et al's C. W. Chapman 1, td 1514 ft, prep to resume dr.

CHAMBERS COUNTY—Pure Oil Co.'s Mayes 14, Lost Lake, pulled scr, dr sndy sh at 2746 ft. Mills Bennett's Gulf-Fee B-1, Barbers Hill, n flank extension test, ru Texas Gulf Producing Co.'s Kirby H-9, Barbers Hill, e flank, dr in at 4906, top oil sn 4830 ft. Rio Bravo Oil Co.'s A. N. Fisher 2, tstd salt w and oil 3578 ft, dr dpr at 3806 ft. Sinclair O&G Co.'s Wilburn 9, Barbers Hill, comp for 450 bbl 4880 ft.

FAYETTE COUNTY—Humble O&R Co.'s L. P. Lester 1-A, near Schulenberg, dr 1430 ft.

FORT BEND COUNTY—Stone & Wyman's Beard 1, between Damon and Long Point, abn 975 ft, old td 1275 ft. Naylor & De Costa's Naylor 1, Horatio Chrisman sur, set 140 ft 20-in cas, woc. Cullen & West & Gulf Prod Co.'s George 3, flwg 10 bbl per hr from 3220 ft, Jno. Rabb sur. Gulf Prod. Co.'s T. R. Booth 1, Jno. Rabb sur, ru. Jas. T. O'Hara's T. A. Brown 1, Pilant Lake, dr 1025 ft gbo, set 10-in cas at 150 ft.

GALVESTON COUNTY — Yount Lee Oil Co.'s Cade 26, N. Fitzsimmons sur, ru; Cade 27, High Island, N. Fitzsimmons sur, lcn; Broussard & Orme 1, High Island, Martin Dunman lge, set 10-in cas at 1200 ft, wocs.

GRIMES COUNTY—J. C. Barnett et al's G. W. Dodd 1, ne part of county, w of Iola, ru and stg. Rianjo Oil Co.'s Cuthrell 2, Carlos Dome, dr sh 1150 ft. Stanolind O&G Co.'s Mary Sullivan 1, mov in mat.

HARRIS COUNTY—H. H. Givens et al's Lobit 1, 8 mi w Houston, Addicks dist, dr gbo 3045 ft.

HILL COUNTY—C. Houseman's Griffith 1, Waddell sur, sd at 3080 ft after fsg, old td 3260 ft.

JASPER COUNTY—Hext Dr Co.'s Flournoy 1, 4 mi se Jasper, sd in sh and 3780 ft. Pittman & Elam's Broussard 1, 2 mi w Sabine, dr 2000 ft gbo.

JEFFERSON COUNTY—Jack Schultz's O. M. Todd 1, Cheek dome, dr gbo 872 ft.

LIBERTY COUNTY — Cranfill-Reynolds Davis 4, Esperson, 4045 hard sh. Texas Gulf Sulphur Co.'s Sargent 3, Moss Bluff, dr 732 ft.

MATAGORDA COUNTY—United North & South Dev. Co.'s Stoddard 1, Buckeye dist, dr 7565 ft; F. L. McDonald 1, sec 5, blk 9, I&GN sur, dr gbo 1600 ft. L. P. Smith's Hudson 1, Markham, dr 2800 ft, sh and li.

MONTGOMERY COUNTY—Heep Oil Corp.'s R. L. Cartwright 1, set 10-in cas at 307 ft. Pevehouse Oil Co.'s Wilhite 1, 5 mi w Conroe, dr sh 3535 ft.

NACOGDOCHES COUNTY—Harwell & Scully's R. T. Driver 1, 12 mi se Nacogdoches, reported 8-in oil sn at 3666 ft, td 3720 ft.

NEWTON COUNTY—R. T. Briscoe's Joe Inman 1-A, 1700 ft in sh, sd.

ORANGE COUNTY—Ala-Tex Oil Co.'s Reed 1, 2½ mi se Orange, dr gbo 3400 ft. Crews Oil Co.'s Mansfield 1, near Orange, sd in rk at 2275 ft. The Texas Co.'s Polk-Kuhn Glass Co. 1, Port Neches, dr 5866 ft, core at 5664 ft no show; Kuhn 3, Port Neches, dr 915 ft, sn and bldrs; Polk 3, Port Neches, ru.

POLK COUNTY—J. N. McCarty's Bromley 1, 7 mi se Livingston, dk.

TRINITY COUNTY—Jno. Deering's Gibson 1, A. Donovan sur, dr sh 1457 ft.

WALKER COUNTY — C. C. Meredith's Thompson Bros. 1, dr sh 2100 ft. Mound Prairie Oil Co.'s Cameron Lbr. Co. 1, 2720 ft cor sndy shale.

## CENTRAL EAST TEXAS

| Company, Well and Location | Initial Production Bbls. | Depth |
|---|---|---|
| HENDERSON COUNTY— | | |
| Robt. Watchorn (Alma Pet. Corp.) | | |
| T. B. Wofford 1 ..... | * | 4846 |
| UPSHUR COUNTY— | | |
| Gillette-Tarr-Potter & Pilot Oil Co., | | |
| D. A. Irions 1 ..... | * | 3942 |

## SOUTH TEXAS

ARANSAS COUNTY—Big Lake Oil Co.'s Giesecke 1, St. Joseph's Island near Aransas Pass, lcn.

ATASCOSA COUNTY — American Central O&G Co.'s McConnell 2, Blk 138, Baker sur, sd 1660 ft, mov on to deepen.

BASTROP COUNTY—Birdwell et al's White 1, Nancy Roberts sur, 4 mi se Belton, td 500 ft at last rept. Humble O&R Co. & Sun Oil Co.'s Powers et al 1-B, Blk 197, 4 mi ne Bastrop, dr 3110 ft. E. R. Marts & Beavens' Wm. Bahm 2, 350 ft e No. 1, J. Standifer sur, spud in.

BEE COUNTY—Buck Oil Corp.'s George Ray 3, nw cor of lease, Jno. Williamson sur, sand 3897-3903 ft, show oil, set 6⅝ inch csg 3896 ft, w.o.c. J. M. Davis et al's Geo. Ray 1, 1600 ft sw discovery, Jno. Williamson sur, Pettus (Damac) sand 3952-60 ft, no test available. Houston Oil Co.'s Portis 4, e offset Portis 3, A. Smalley sur, Pettus (Damac), dr 3500 ft. Humble O&R Co.'s Laura Thompson 1, Garrett Roche sur, sd 5310 ft. Humble O&R Co. & Hulburt et al's J. C. Wood 1, P. T. Irrigation Co. sur, 5 mi se Beeville, originally abn 11-27-30, td 5077 ft, co, made head 47 gravity oil, 6⅝ inch csg set 4949 ft, now sd. Mauldin et al's Fee 1, sw cor 16-a tract, Geo. A. Kerr sur, ru. Slick Seeligson, Inc.'s, Geo. A. Ray 4, n offset Portis 3, G. A. Kerr sur, Pettus (Damac), sand 3906-09 ft, dst 200 lbs and 16 fourbles of mud, no oil, cored to 3912 ft, no test, set 6⅝ inch csg 3905 ft, w.o.c. Geo. A. Ray 5, e offset Ray 3, dr 2465 ft. The Texas Co.'s L. Gremmel 4, John Pace sur, sw offset No. 3, Pettus (Damac), lcn; Gremmel 5, Jno. Pace sur, sw offset No. 4, lcn.

BEXAR COUNTY—Alamo Nat'l Gas Co.'s W. Gembler 3, A. Menchaca sur No. 51, Eckert, sand 708-16 ft, shale 716-18 ft, completed 10 bbls; W. Gembler 4, A. Menchaca sur, spud in. Anderson, Ingersoll & Miller's Stenburg, 9 mi sw San Antonio, F. Rolen sur, dr 550 ft. S. W. Blount's S. A. Land & Dev. Co. 1, 1 mi e Medina river on Palo Alto rd, 12 mi s San Antonio, sd 520 ft. Jno. T. Callahan's J. H. Buch 1, J. W. McCamley sur, 9 mi w S. A., sd 650 ft. Chiquita Oil Co.'s (Witherspoon) W. H. Cooksey 3, J. W. Rialls sur, Cooksey, lcn; A. Piniazek 1, Martinez & Arocha sur, 1000 ft sw Cooksey Pool, set 6⅝ inch csg 1520 ft; top sand abt 1550 ft, td 1669 ft, ru to pump; Dan Kosub 1, Rialls sur, Cooksey Pool, mov on. Eckert et al's Edward Heirs 1, Martinez sur, 8 mi se San Antonio, Gonzales rd, dr 1600 ft; Brehm 8, Martinez sur, Eckert pool. Gatlin Oil Co.'s I. A. Beck 10, J. Montez sur, Eckert pool, completed 7 bbls, sand 690-710 ft. Jones-Volz's F. Bonkowsky 6, dr 600 ft. Ewell Neill's J. M. Watson 1, Martinez sur, 10 mi s San Antonio, show sulphur water 2328 ft, sd. Schneider, Rees et al's Claussen 1, ne San Antonio, SJ&A Sur No. 17, sd 1143 ft. W. R. Swearingen et al's J. E. Halbardier 7, Perez sur, Eckert pool, td abt 710 ft, completed 8 bbls; J. E. Halbardier 8, Perez sur, Eckert pool, move on. Van Duyn et al's Bradden 1, 1 mi n Medina river, 8 mi w San Antonio, dr 810 ft. W. K. Oil & Gas Co.'s Strunk 1, Montez sur, Eckert pool, dr 150 ft; Strunk 2, lcn.

BLANCO COUNTY—Hardy Sitton's Standeford 1, sur 155, 3¼ mi sw Blanco City, td 1260 ft. Thomas Hicks et al's Specht & Wiedner 1, Thos. M. Fowler sur No. 27, 2 mi s Twin Sisters, sd 1635 ft.

CALDWELL COUNTY—Joe Bruner's Malone 1, A. Floyd sur, 2 lcns s Salt Flat, sd 2702 ft. T. W. Cole's J. M. Pierce 1, S. Seal sur, n Dunlop wells, sd 825 ft. Detroit Texas Dev. Co.'s (M. O. Rayor) Dunlop 2, Solomon Seal Sur, 2¼ mi ne Luling, sd 2503 ft. Rex Kendricks et al's Virgil Carter 1, Isaac Allen sur, 3 mi sw Lytton Spgs, prep to spud in. Meyer

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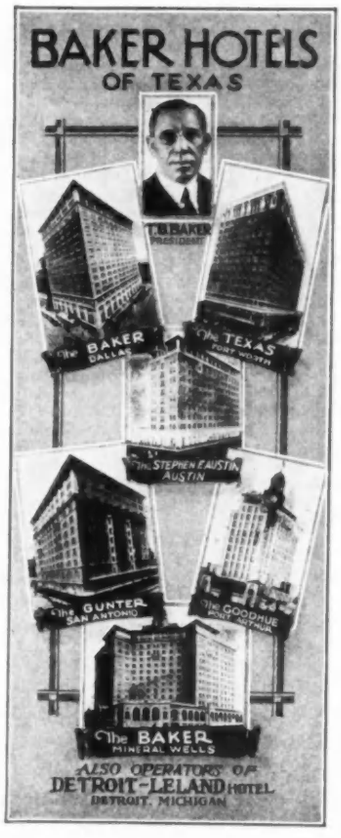



Exploration Co.'s Walker 1, Solomon Seal Sur, 3 mi w and n of Luling, sd 170 ft for rock bit.

DE WITT COUNTY—C. R. & M. Drlg. Co.'s J. C. Tom 1, A. Lazo sur, A. W. Talk ranch, 1 mi sw Slick pool, dr 3254 ft.

DUVAL COUNTY—Cole Pet. Co.'s Benavides 75, blk 8, sur 19, Mariano Arispe Grant, Cole-Bruni pool, dr 2310 ft. Duval Oil Co.'s Bishop Cattle Co. 8, sur 135, Gov't Wells field, dr 1700 ft. Frank Garvis et al's Schallert 2, Blk 10, Cain & Smith sur 55, Palangana Salt Dome, dr 1720 ft. O. W. Killam's Sutherland 1, sur 7, dr 2700 ft; Peters 1, sur 1, ru. Mag. Pet. Co.'s (Texas) Duval County Ranch Co. 1-B, Sec. 96, 1 mi s and 5 mi e S. R. C., dr 1875 ft. S. R. & C. & Mag. Pet. Co.'s Duval Co. Ranch Land 7, S. R. C. pool, lcn. R. A. Thompson's Parr 1, San Andres Grant, dr 2325 ft.

GOLIAD COUNTY — Benedum and Trees and Plymouth Oil Co.'s Park 1, B. S. & F. Sur No. 8, 2900 ft se Gibson Parks 1, td 4555 ft, 9 inch cas set 4480 ft, heaving shale, set liner and screen to 4544 ft, heaving shale stopped test, pull liner and cement. David E. Dunlap's A. T. Fromme 1, P. Dexter sur, lcn. Hoffman & Gooch's Fromme 1, (formerly Rheimenschneider) 10 mi n Goliad, Peter Dexter sur, originally abn 2302 ft, ru to deepen. L. Neal et al's Pettus 1, J. M. Pettus tract, Pedro Trevino sur, w Goliad, re-dr, now at 4200 ft.

GONZALES COUNTY—Crowder Oil Co.'s Preston 1, W. W. Pace sur, spud in and sd. Johnson-Matlocks O&G Co.'s J. James 1, M. A. Williamson sur; dr 225 ft. Nassamer, Gordon & Waldrop's B. Botts 1, sec 6, blk 56, Gonzales sur, lcn.

GUADALUPE COUNTY—Barnhill et al's Hoffman 1, DeWitt sur, between Seguin and Darst Creek, sd abt 1760 ft. Humble O&R Co.'s Sue Denman 3-C, Wm. C. Arrington sur, Darst Creek, set 96 ft sur csg, woc.

HIDALGO COUNTY—B. H. Adams' (Barrett & Kanellos) J. D. Brock 1, blk 15, porcion 79, 15 mi nw Mission, coring 2713 ft. La Joya O&G Co.'s W. L. Hart 1, w part of county, coring 4239 ft. Dayle L. Smith Oil Co.'s Fernandez 5, Porcion 75, 21 mi w McAllen, sd 4026 ft; Daskman 3, 900 ft w Fernandez, dr 766 ft. San Roman Oil Co.'s (W. A. Taylor), Lomax 1, Share 15, dr 490 ft.

JIM HOGG COUNTY—H. D. Conley et al's Holbein 1, blk 7, sur 7, Reuben Holbein Oil lease, sub of Share 3, Las Animas Grant, dr 1345 ft. O. W. Killam's Hinnant 1, sur 164, Randado field, dr 2170 ft. T. P. Morgan's Fee 1, Share 19, Palo Blanco Grant, dr 2600 ft. United N. & S. Oil Co.'s Gutierrez 1, blk 325, E. M. Doty sub, Charco Redondo Grant, dr abt 2000 ft.

JIM WELLS COUNTY—Gulf Prod. Co.'s Schaeffer 5, sur 89, rept gas blow-out abt 3000 ft. Mag. Pet. Co.'s Seelingson 1, Lot 5, blk 11, A. Ramirez sur, 15 mi s Ben Bolt, dr 3900 ft.

KENDALL COUNTY—Borgett et al's W. Hagg 1, w Avery sur, sd 1250 ft.

KERR COUNTY—George Ball's F. A. Karger 1, move on. Evans and Gant's Jeff Love 2, Sec. 1593, ½ mi se discovery, sd 5849 ft; Jeff Love 3, J.Martinez sur No. 1594, 600 ft e Love 1, lcn. Herbert & Halbert's J. D. Witt 1, W. H. Hamilton sur, Sec. 1923, td 100 ft, prep to deepen.

KLEBERG COUNTY—Joiner et al's (Barbee and Hunter) J. D. Finnegan 1, el Pasidio sur, 7 mi s Kingsville, sd 4007 ft.

LIVE OAK COUNTY—Coastal Oil Finding Co.'s A. M. Handley 1, C. S. Cobb sur, 12 mi sw Beeville, spud in. Coquat et al's (Phillips Pet. Co.) Sanger 2, 1280 ft nw No. 1, move on. Houston Oil Co.'s Cartwright 24, J. M. Colchado sur, Mt. Lucas field, sand 5290-5323 ft, completed 60 bbls gasoline, 2,000,000 cu ft gas. Jacob,Buzzini & Pickett's Brewer 1, 21½ mi n Jacob 1, T. B. Spark sur, No. 14, Wichett blk, abn 1309 ft.

MAVERICK COUNTY — I. N. Boicourt's Bandera School Land 2, sd 2284 ft. Texas Gas Utilities Co.'s Chittim 8, Sec. 129, blk 7, I&GN sur, Chittim field, sd 4875 ft.

McMULLEN COUNTY—Prince Pet. Co.'s A. Grohman 1, blk 61, Prince Ranch sur, lcn. V. G. Schimmel's F. A. Hale 2, 300 ft No 1, sur 63, Two Rivers ranch sub, sd 300 ft acct weather.

MEDINA COUNTY—C. J. Webster O&G Co.'s (National) Adams 1, Hillemeyer sur No. 25, near Devine, dr 2737 ft, base chalk.

NUECES COUNTY—John F. Camp & Stanoline O&G Co.'s King 1, Sec. 23, Richard King Farm lots sub, 6 mi n Agua Dulce, ru. Gulf Coast Oil Co.'s Sedwick 2, Saxet field, sand 4550-56 ft, dst 8 fourbles oil and 7 fourbles mud, set csg. Houston Oil Co.'s McGregor 1,


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dr 2700 ft. Saxet Oil Co.'s Dunn 6, coring 5082 ft.

REFUGIO COUNTY — Blanco Creek Oil Corp.'s Dammann 1, blk 18, Bonnie View Ranch sub, 8 mi s and e Refugio field, sd 4685 ft. G. C. Dixon's P. M. Peck 1, Sec. 24, Bonnie View Ranch, sd 100 ft. Humble O&R Co.'s M. V. O'Conner 2, John Keathing sur, near Victoria line, 933 ft n and 75 degrees w O'Conner 1, set 400 ft 20 inch csg, woc. E. M. Jones' Josephine Mitchell 1-B, Refugio sur, coring 5505 ft.

SAN PATRICIO COUNTY — Atlantic Oil Co.'s (Welder Oil Co.) Welder 3, 900 ft n No. 2, old gasser 3659-61 ft, to deepen. John F. Camp's Jackson 1, Sec. 50, G. H. Paul sur, 3 mi n of Edroy, ru.

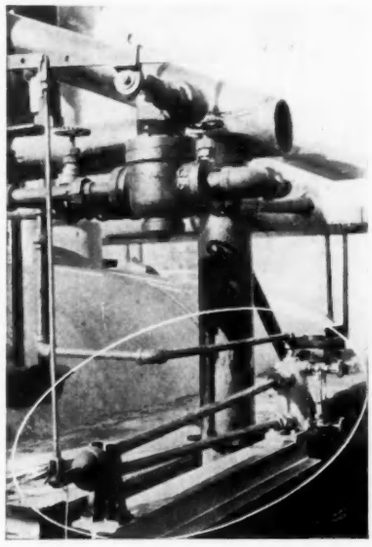
STARR COUNTY — Davenport et al's Fee (Wells) 1, C. O. Newman sub, sur 33, El Benadito Grant, dr 1095 ft. H. H. Davis' Kelsey-Bass 2, Sec. 6, Porcion 76, top oil sand 474 ft, set csg, woc. Hooks and Weaver's Kelsey Bass 3, blk 2, sur 6, sand 460-480 ft, set 3 inch csg 460 ft, complete 20 bbls; Kelsey Bass 4, blk 2, sur 6, ru. Jones and Watts & Carter's Kelsey Bass 1, sur 7, ¾ mi s field, Jurisdiction of Camargo, dr 246 ft. Los Olmos O&G Co.'s Kelsey Bass 9 (10), sur 6, dr 345 ft. Quien Sabe O&G Co.'s W. H. Kusch 2, Por. 75, tract 11, spud in. Rio O&R Co.'s Kelsey Bass 2, sur 6, dr 135 ft. San Marcos Drlg. Co.'s Ivey 5, Share 8, sub Por. 75-76-77, abn 335 ft; Ivey 6, share 8, td 287 ft, completed 100,000 cu ft gas, 115 lbs. pressure; Ivey 7, share 8, spud in. Souix Oil Co.'s (R. E. Johnson) Goodrich 1, tract 5, Por. 81, 1½ mi n Rio Grande City, dr 1225 ft. Stryalls Oil Co.'s M. E. Salinas Por. 80, Share 38C, dr 600 ft. Ed Sullivan's Kelsey Bass 1, sur 7, dr 310 ft. R. B. Suttles, Guerra 1, Porcion 110, dr 810 ft (last rept). Suttle and Rutherford's Kelsey Bass 1, sur 9, lcn dropped until work starts. Ed. Tarver's Frank Dano 1, to make lcn. J. A. Turner's A. K. Bass 1, Sec. 77, Blk 7, lcn. Jess Williams' Welsh 1, Pedernal Grant, sd 425 ft.

VICTORIA COUNTY—C. B. Bunte & C. R. & M. Drlg. Co.'s Keeran 2, Keeran field, w of of No. 1, ru. Houston Oil Co. & Magnolia Pet. Co.'s Beck 1, ne Victoria, to make lcn. T. B. Slick Estate's McFadden 2, 3500 ft nw 1, J. Barian sur, ru. The Texas Co.'s McFadden 4, 2800 ft n No. 3, ru.

WEBB COUNTY—French Oil Corp.'s Benavides 5-A, Sur 659, Cole-Bruni field, td 2335 ft, completed 75 bbls. O. W. Killam's Bruni (Ranchito) 4, J. V. Borrego Grant, ru. Power & Detterheim's Cowan & Goss 1, sur 1606 ft, sd 300 ft. Rosenberg, Johnson & Peacock's Laurel 1, Blk 10, sur 27, Carolina Texas pool, dr 2320 ft. W. R. Shankle & Ellison Fur. & Carpet Co.'s 1, blk 2, sur 466, lcn.

WILLIAMSON COUNTY — Burns et al's Wilder 1, R. Owens sur, sd 1496 ft. Hayes and Gee's E. G. Johnson 1, B. C. Low sur, s Georgetown, sd 1595 ft. McLean's et al's Miller 1-A, Manlove sur, sw No. 1, prep to spud. Peterman et al's Caller 1, 1 mi nw Thrall, dr 1320 ft in Georgetown. R. S. Wilson's J. S. Speckels 1, J. Jordan sur, 1 mi n Coupland, sd 875 ft.

ZAPATA COUNTY—Geo. Ball's Gutierrez 1, standing 2065 ft, to deepen. Bob & Richey's (Duke) Martinez 28, blk 24, W. R. Duke sub, Charco-Redondo grant, td 175 ft, one bbl; Martinez 29, blk 35, td 174 ft, 2 bbls. Ballard & Mercer's Flores 1, Blk 27, Marks sub, Porcion 37, dr 1648 ft. E. R. Black & Paul S. Williams' Alworth 1, Comitas Grant, lcn. Borgan & Belcher's M. Garza Estate 1, Blk 62, C. A. Douglas sub, Comitas Grant, sand 1680 ft, testing. F. M. Blair & Son's Montemayor 1, blk 1, sur 63, Escobas field, spud in. Eddington & Niles' Trevino 1, Share 34, lcn. F. H. Etheridge's Winch & Henne 2, Martinez pool, sur 286, sd 1747 ft; Winch & Henne 3, blk 10, sur 286, coring 1720 ft; Winch & Henne 4, blk 10, sur 286, lcn. O. W. Killam's Medina 4, share 34, Fansler Partition, Comitas Grant, Escobas field, spudded; Medina 5, share 34, Fansler Partition, Comitas Grant, Escobas field, lcn. D. M. Shafer's M. Garza Estate 1, C. A. Douglas sub, Zorro ranch, Las Comitas grant, ru. S. R. C. Oil Co.'s Montemayor 6-D, blk 10, sur 64, s offset Daniels & Hill well, re-cement csg 1474 ft, sand 1475-79 ft, woc; Montemayor 7-D, blk 8, sur 64, sand 1471-74 ft, completed 75 bbls; Montemayor 8-D, blk 8, sur 64, set 6⅝ inch csg 1469 ft, dr in. Trevino Oil Co.'s M. Garza Estate 1, blk 36, C. A. Douglas sub, ru; I. G. Trevino 16-A, sec 4121 blk 14, ru. Winch and Billings' Jose Bustamante 9, Share 35, Fansler

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*Cement Float Collar*
*Cement Float Shoe*
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Partition, Comitas Grant, Escobas field, dr 1000 ft; Jose Bustamante 10, Share 35, Fansler Partition, Comitas Grant, Escobas field, lcn.

ZAVALLA COUNTY — Carpenter et al's Wolf 1, Amos, Beaty and Moulton Block A survey, sand 731-57 ft, 3 ft break of rock, show gas, set csg 726 ft, woc.

## ▼ PERMITS ▼

(Continued from page 60)

650 ft from n and 330 ft from e line. Navarro Oil Co., Houston, R. N. Brightwell, 113, 6, R. E. Winn sur, 110 ft w of center of e line. Tidal Oil Co., Fort Worth, L. J. Pinkston, 134, 7, F. Cordova sur, 1250 ft from w and 288 ft from s line. R. M. V. Oil Co., Henderson, L. J. Pinkston, 73, 3, M. J. Pru sur, 330 ft from n and e lines. Magnolia Pet. Co., Dallas, M. E. Peterson, 40, 3, W. P. Chisum sur, 330 ft from s and w lines. Stanolind Oil & Gas Co., Longview, W. H. Siler, 121, 1, T. M. White sur 330 ft from n and w lines. Gulf Prod. Co., Houston, H. Sexton A54, 1, Geo. Cooper sur, 416 ft from n and 330 ft from w line. W. Florence, 165, 7, J. S. Whiteman sur, 330 ft from s and e lines. H. Johnson, 101, 2, H. B. Dance sur, 330 ft from n and e lines. Humble Oil & Refg. Co., Houston, S. S. Laird, A, 230, 13, I. Ruddle sur, 318 ft from e and 330 ft from s line. R.E.L. Silver, 125, 4, T. J. Martin sur, 330 ft from s and w lines. C. Pilgreen, 56, 3, T. H. Smith sur, 330 ft from n and w lines. (Amended location)—J. J. Pitner, 65, 3, T. J. Martin sur, 97 ft from w and 1939 ft from s line.

REFUGIO COUNTY—Saxet Oil Co., Houston, C. H. Cable, 3, B 19, Refugio sur, 91 ft from w and 235 ft from s line; 2, 248 ft from n and 98 ft from w line, blk 20.

SMITH COUNTY—Sun Oil Co., Dallas, H. A. Pace, 643, 1, J. Vargas sur, 330 ft from n and e lines. C. L. McMahon, Tulsa, Okla., S. S. Cook, 40, 2, Jas. Jordan sur, 255 ft from n and 186 ft from e line. Sinclair Oil & Gas Co., Fort Worth, A. S. Jarvis, A, 266, 9, J. Jarvis sur, 330 ft from s and w lines. Texas Co., Shreveport, La., A. S. Jarvis, 115, B 1, M. S. Coy sur, 330 ft from n and e lines.

SHACKLEFORD COUNTY — Home Oil & Gas Co., Albany, M. Huber, 80, 11, 331, TE&L sur, 300 ft e of No. 5. J. A. Bearman, Cisco, R. J. Moberly, 120, 1, S 48, B 11, T&P sur, 150 ft from s and e lines. Union Oil & Mining Co., Tulsa, Okla., L. H. Hill, 200, 1, S 38, Blind Asy. sur, 150 ft from n and e lines. Callihan & Carter, Albany, A. U. Clark, 58, A1, S 2, Blind Asy. sur, 170 ft from e and 165 ft from s line. Cross & Costin, Albany, W. G. Webb, 201, 2, 586 TE&L sur, 2000 ft from ne and 537 ft from se line.

STARR COUNTY—J. A. Tarver, San Antonio, A. K. Bass, 40, 1, S 76, B 7, Camargo sur, 150 ft from n and 300 ft from w line. M. A. Landrum, Harlingen, K. Bass, 30, 1, S 6, Por. 75-76-77, 150 ft from s and e lines.

THROCKMORTON COUNTY—R. C. McCarter, Rising Star, L. Tuton, 160, 1, S. P. No. 2 sur, 450 ft from nw and 150 ft from ne line.

UPSHUR COUNTY—Humble Oil & Refg. Co., Houston, J. T. Miller, B, 57, 2, D. Ferguson sur, 1077 ft from w and 330 ft from s line. E. O'Byrne, B, 125, 2, D. Ferguson sur, 330 ft from s and e lines. Sun Oil Co., Dallas, J. Hargraves, 200, 4, M. Mann sur, 1146 ft from e and 1238 ft from s line. L. M. Harris, Gladewater, A. J. Sanders, 8, 1, T. Allen sur, center. Shell Pet. Corp., Dallas, C. C. Landers, 206, 10, G. W. Hooper sur, 330 ft from n and 341 ft from e line.

VAN ZANDT COUNTY—Pure Oil Co, Fort Worth, J. M. Martin, 134, J. Stephenson sur, 225 ft from n and e lines.

VICTORIA COUNTY — T. B. Slick Est., Oklahoma City, Okla., McFaddin, 8313, 2, J. Varin sur, sw corner. Texas Co., Houston, A. M. McFaddin, 4, J. M. Rine sur, 2800 ft n of No. 3.

WICHITA COUNTY — Geo. W. Cooper, Wichita Falls, J. Waggoner, 296, 16, S. S. GH&H sur, 300 ft w of No. 15. R. P. Dorian, Wichita Falls, J. H. Musgraves, 200, 1, W. M. Bruce sur, 2400 ft from n and 600 ft from se line.

# New Equipment for the Field

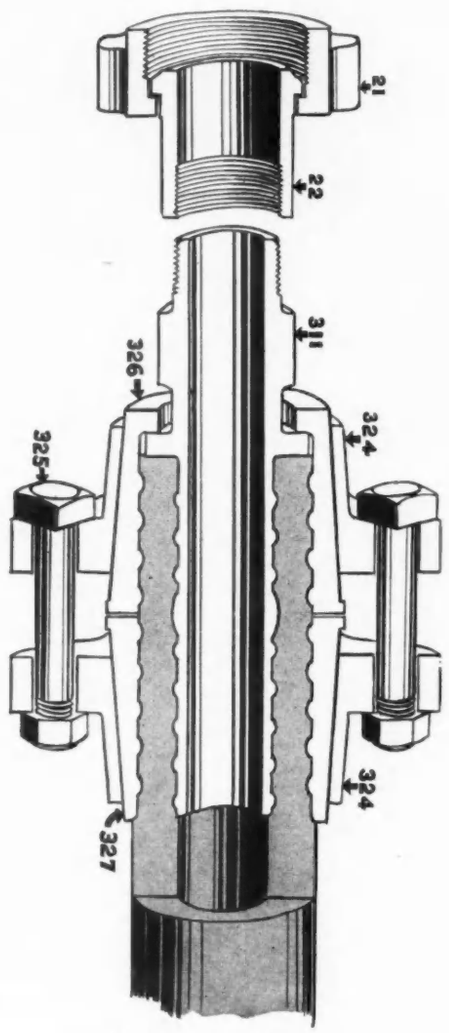
## MACHINERY - TOOLS CATALOGS - BOOKS

▼ ▼ ▼

### 1. Rotary Hose Coupling

**THE SHAFFER SPECIALTY COMPANY**

The Shaffer Specialty Company, 2440 East King, Tulsa, Oklahoma, announces a rotary hose connection that has been tested to withstand a pressure of 6000 pounds without seepage. The coupling is made of cast steel and the nipples are uniform in wall thickness, according to the manufacturer.




*Shaffer Hose Coupling*

The outside surface of the stem of the nipple, the part that is inserted into the hose, is designed with a number of evenly spaced circumferential ribs, the middle rib being somewhat larger than the others. Similar ribs are formed on the inner surface of the slips, so spaced that when applied to the hose they are intermediate to the ribs on the nipple.

Pressure is applied by drawing the sleeves together on the tapered slips, embedding the alternate rings into the hose fabric and creating an effective seal between the hose and the nipple.

### 2. Motor

**WAGNER ELECTRIC CORPORATION**

Wagner Electric Corporation, 6400 Plymouth Avenue, St. Louis, Missouri, announces a new high-torque single-phase motor (type RG) designed for severe starting duty. The motor is of the repulsion - induction brush - riding type —that is, the rotor in addition to having a wire winding also has a permanently short - circuited squirrel-cage winding.

*Wagner Motor*

In addition to the desired high starting - torque which this motor gives, it also has a comparatively low starting-current draw, and lends itself readily to slow-speed regulation. The motor is of all-steel construction, electrically-welded, with drip-proof end plates. High-quality carbon brushes, in addition to steel-backed babbitt-lined bearings, should assure efficient operation.

### 3. Oil Field Chains

**BALDWIN-DUCKWORTH CHAIN CORPORATION**

Baldwin-Duckworth Chain Corporation, Springfield, Massachusetts, has announced two new oil field chains, designed especially for medium and shallow wells, known respectively as API 3 and API 4. The API 3 has a tensile strength of 45,000 pounds, while the API 4 has a tensile strength of 85,000 pounds.

Two side bars, one pin, bushing and roller form the complete link, accurate and tight, with the wear confined to the bearing surfaces designed for that purpose. The links are of a carefully selected steel, heat treated to secure strength and toughness.

The rollers are machined from solid bar steel, heat treated. Bushings are of cold rolled steel, machined from

— — — — — — ***MAIL COUPON*** — — — — — —

THE OIL WEEKLY,
Houston, Texas, U. S. A.

Please see that I am supplied, without obligation, additional information on New Equipment Items Nos._____ described in the February 26, 1932, issue of THE OIL WEEKLY.

*Name* .....

*Company* .....

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**INVESTIGATE**

*Performance Cost*

HUF-DUO PUMP

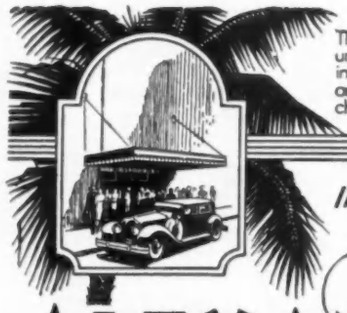
**Efficient control of manufacturing, low cost of distribution, is reflected in the selling price of Huf - Duo Pumps.**

**FIELD TEST WILL PROVE QUALITY SERVICE. HUF-DUO DISTRIBUTOR WILL GIVE YOU PRICES.**

***Resist a substitute.***

**THE CHARLES N. HOUGH MFG. CO.**
**Franklin, Pa.**





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**LOS ANGELES**


the solid bar and ground to exact size after case hardening. The pins are of a carbon alloy steel, heat treated, forged and finished true to size. They are keyed into one of the side bars and press-fitted into both so that they cannot work loose.

## 4. Pump Jack

**SHAFFER TOOL WORKS**

Shaffer Tool Works, Brea, California, has placed on the market the Shaffer "Bull Dog" pump jack, which makers claim has unusual smoothness of operation because of the weight of the rods being carried at all times by an air cushion.

*Shaffer Pump Jack*

Counterbalancing is achieved by means of air pressure with a small air compressor. This eliminates the strain which is caused by the inertia of the usual large counterbalances. The balance is adjusted to a nicety by setting the air pressure to the right point. This can be done without stopping the well.

The pump jack folds back when the well is to be pulled. There is no moving of the jack and no heavy counterbalance weights to disconnect or handle.

## 5. Tape Rule

**LUFKIN RULE COMPANY**

Lufkin Rule Company, Saginaw, Michigan, has placed on the market a new type of flexible rule which it calls the "Crescent Junior", it being smaller and lighter than standard sized tape rules manufactured by the company.

*Lufkin Rule*

The rule is about the size of a pocket watch, has an automatic wind, and is made in four- and six-foot lengths. It is made of tempered steel, stiffened by special forming, and it is graduated by inches down to sixteenths. The blade is manually withdrawn and automatically returned by pressing a push button.

## 6. Mud Weight

**MID-CONTINENT MUD COMPANY**

Mid-Continent Mud Company, 3100 Butler Street, Houston, are offering for sale to the oil industry "Barona", a rotary fluid control weight consisting of barytes and clays ground and mixed to comply with the specifications of the engineer or superintendent according to his drilling requirements. "Barona" is manufactured from Arizona barytes and West Texas clays and can be furnished in any consistency ranging from 40 per cent up to 98 per cent in weighting contents.

# Catalogs • Bulletins

### Wrenches

**J. H. Williams & Co.**, 75 Spring Street, New York, has released the twenty-first edition of its catalog of wrenches for all purposes. Included in the illustrated 215 page catalog are descriptions of midget wrenches, electrical wrenches, various combinations of socket wrenches, 15-degree angle single and double head wrenches, 75-degree angle double end wrenches, 22½-degree angle double end wrenches, construction wrenches, single and double offset box wrenches, check nut wrenches, monkey wrenches, chain tongs, chain pipe vises, tool holders, lathe dogs, clamps, wire rope sockets, hooks, eye bolts, and other related tools.

### Roller Chains—Sprockets

**Chain Belt Company**, 1600 West Bruce Street, Milwaukee, Wisconsin, has published a 112-page, illustrated, fabricoid bound catalog on Rex roller chains and sprockets. The publication contains prices, weights, and information on the design and application of Rex roller chains, block chains, leaf chains and cut tooth sprockets, and also considerable engineering data.

### Ball Bearings

**Gurney Ball Bearing Division** of Marlin Rockwell Corporation, Jamestown, New York, has released for distribution the third edition of the Ball Bearing Manual giving engineering data, description and prices on single row bearings, thrust bearings, radio-thrust bearings, duplex bearings, double row bearings, lubriseal bearings, and miscellaneous bearings.

### Heat Exchangers

**Alco Products, Incorporated**, 220 East 42nd Street, New York, New York, has recently issued a catalog of heat transfer equipment for the oil industry, producing and refining branches. The catalog is comprised of two bulletins.

Bulletin No. 1012, "Heat Transfer Equipment for the Oil Industry", showing distillation units, vertical single pass heat exchangers, combined vacuum condenser-receivers, horizontal vapor condensers, floating head exchangers, tank type vaporizers, gas coolers, gasoline condensers, and miscellaneous related data. Bulletin No. 1013, "Shell and Tube Type Jacket Water Coolers" shows pipe line engine jacket water coolers, fixed head coolers, packed head coolers, vertical final condensers, vapor heat exchangers and condensers of horizontal types, horizontal vapor condensers for vacuum service, liquid-to-liquid exchangers, liquid heaters, gas coolers, baffles and tube bundles, longitudinal shell baffles, floating heads, tube joints, bolted joints, tube passes, reboilers and vaporizers.

— — — — — — *MAIL COUPON* — — — — — —

Company .. .....

Address .. .....

Please send me, without obligation, free booklet described in THE OIL WEEKLY, February 26, 1932.

Name .. .....

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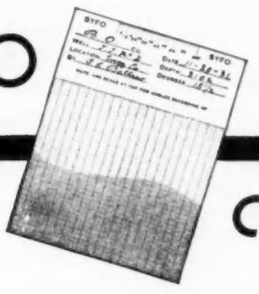
# Oil Companies Prefer Our Crews Make the Surveys

Many major oil companies will only acquire the production of a well after being assured it is comparatively straight.

Independents and drilling companies prefer, therefore, that the SYFO Clinograph be serviced by our engineers rather than by their own crews . . . since it affords unbiased authenticity to the report. Syfo (the Ink Bottle) Charts made by our engineers are often pasted on the back of the Drilling Log.

SYFO



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# NEWS *from the* *Industry's* EQUIPMENT MAKERS

***Keeping in touch with developments with Manufacturers and Supply Dealers***

**Advance Rumely Company and Allis-Chalmers Manufacturing Company** announce that Fred E. Cooper, special oil field representative who has developed all the oil field equipment for Advance Rumely and who had charge of exclusive sales for oil field purposes, has added to his department the complete line of Allis-Chalmers wheel tractors and all tractor motors, and is now working directly with engineers at the factories in developing winches and oil field equipment. This connection was brought about by the recent merger of the above organizations.

**Goulds Pumps, Incorporated,** Seneca Falls, New York, announces the resignation of H. S. Fredenburgh as secretary and comptroller after he had been with the corporation for more than 20 years. Seabury S. Gould, second vice-president of the corporation, succeeds Mr. Fredenburgh as secretary and the late William D. Pomeroy as a member of the board of directors. Hamilton Garnsey, Jr., has been appointed assistant to the president.

**Pacific Pipe and Supply Company,** Los Angeles, California, has been appointed jobber in that locality for Tube-Turns, Incorporated, manufacturers of stock fittings for pipe welding.

**Lukenweld, Incorporated,** Coatesville, Pennsylvania, has appointed two new representatives to handle the sales and service of its products. In Wisconsin, Lukenweld, Incorporated, is represented by Welding Engineering Company, 2872 North 41st Street, Milwaukee. This concern is headed by A. H. Friese, who for many years has been engaged in engineering and sales work in connection with welding and welding apparatus.

In the Buffalo, New York, territory, Lukenweld, Inc., is represented by Marvine Gorham, Jackson Building, Buffalo. Mr. Gorham is a graduate of Massachusetts Institute of Technology and has had many years of experience in the metal-working industries, particularly in the sale and service of castings, pressed steel, forgings and stampings.

**Timken Roller Bearing Company,** Canton, Ohio, recently finished a 100,000-mile test of wearing qality of antifriction bearings on a locomotive which was equipped with tapered roller bearings in all axles, engine truck, driver axles, trailer truck and tender truck. During the test not a single instance of bearing trouble was recorded, the Timken people say.

Wm. R. (Bill) Wilson, factory representative in East Texas for the Kibele Manufacturing Company of San Antonio, Texas, manufacturers of patented pump pistons and well swabs, is using the background of a thorough technical training and long experience in

WM. R. WILSON

the field as a basis for his work as a salesman.

Mr. Wilson served five years apprenticeship as a tool and die maker in Canada. He then entered the shops of the Snow Steam Pump Company at Buffalo, New York, and was soon sent out on the road supervising the installation of gas power engines.

Mr. Wilson decided seven years ago to come to the oil fields of the Southwest. He started in roughnecking for the Magnolia Oil Company in Louisiana, then served the Rio Bravo Oil Company in several capacities. Following this background of technical experience, he became southwestern representative for several companies making alloy and high-speed steels.

As factory representative for Kibele Manufacturing Company, with headquarters at Tyler, Mr. Wilson has played a prominent part in the promotion of pressure-packed slush pump pistons and well swabs in his district.

**Baker Oil Tools, Inc.,** is concentrating its Mid-Continent warehouse facilities at Houston where a branch distributing point has been maintained. This move involves establishing a warehouse stock in Oklahoma City instead of in Tulsa. However, a district sales office will continue to be maintained in Tulsa in charge of Paul V. McGivern as in the past. Ted Sutter is completing a business tour of the Mid-Continent field after which he will return to company headquarters at Huntington Park, California.

## California Exposition Plans Near Completion

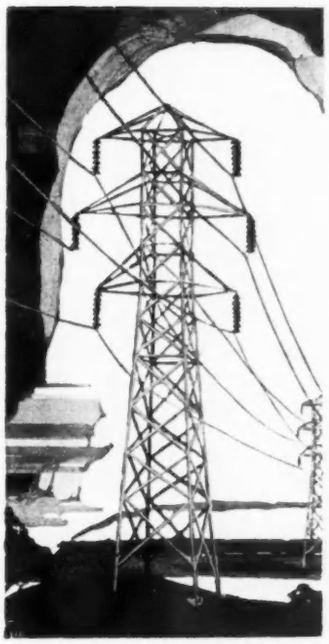
Los Angeles.—Extensive plans are being completed for the formal opening of the Third Annual Oil Equipment & Engineering Exposition at 2 p. m. on Monday, March 21. Governor James Rolph Jr., of California, will make the official opening. Other speeches will be made by officials of some of the large oil companies, and will deal specifically with the problems confronting the various branches of the industry. The program will extend throughout the afternoon, and will include music and other entertainment.

The American Petroleum Institute has planned a display that will be highly educational and of value to men in every branch of the industry. The Institute is also cooperating to make the exposition of benefit to all oil men, and will furnish data on the volume of work that it has done to further the interests of the industry by standardization, code of ethics, etc.

Another technical exhibit recently planned will be given by the California Natural Gasoline Association which will have a display during the Exposition as well as a dinner and meeting on the evening of March 23. Other meetings scheduled include the American Institute of Mining and Metallurgical Engineers at 2 p.m. March 23, the American Society of Civil Engineers at 6 p.m. March 23, the American Society of Mechanical Engineers, the American Society for Steel Treating, the Southern California Meter Association, and several others. One day will be set aside for the American Welding Society which will visit the exposition in a body.

Admission will be by ticket and complimentary tickets can be secured from the exposition by addressing Oil Equipment & Engineering Exposition, P. O. Box 338—Watts Station, Los Angeles. The grounds are located at 131st and Alameda Boulevard; and will be open from 10 a.m. to 10 p.m. daily from March 21 to 27, 1932.

**Moran Tank Company,** Shreveport, Louisiana, recently celebrated its first anniversary as a manufacturer of oil field tanks of capacities ranging from 65 to 10,000 barrels. The anniversary followed close on the heels of an expansion program which involved purchase of the following equipment: a Cincinnati Sharper Company 400-ton press brake, a heavy duty Beloit machine for pressing steel, two Lincoln welding machines, a Marshalltown circular shear, a Chicago Pneumatic compressor, and miscellaneous equipment.



# POWER

## *to unlock nature's treasure vaults*

**Nature has decreed that in proportion to the worth of its treasures, in that proportion must man pay for finding them. Oil, one of Nature's greatest treasures, taxes all the resources of man's mind to find it and to capture it. Electricity plays a prominent part in both. Its use is indispensable in the geophysical methods for locating salt domes. It provides the power for the producing, pipe line, and refining branches of the industry.**

**Nature's treasure vaults of oil were constructed through eons of time in geological yesterday. In America, Equatorial waters mingled with those of the Arctic flowing down to the sea, depositing layer upon layer of microscopic plants and animals. Ages of sedimentary deposits have buried deep these oil-bearing infusoria. It is fitting that electric power, the pinnacle of man's scientific endeavor, should be used to capture Nature's hidden potential power, oil.**

***Our engineers will be glad to supply you with complete information on the use of electric power in the producing, pipe line, or refining branches of the industry.***

# GULF STATES
## *UTILITIES COMPANY*

*General Offices*

**BEAUMONT, TEXAS** **LAKE CHARLES, LA.**

# Squeaks from the Bull Wheel

▼ ▼ ▼

Judge—Do you know anybody who can vouch for your good character.

Accused—Yes, the chief of police.

(The chief of police is called.)

Judge—But he says he does not know you.

Accused—What more do you want? I have lived in his police precinct for 20 years, and he does not know me!

---

"Did you know the defendant, Rastus?"

"Ah had a logical acquaintance with him."

"What do you mean by logical acquaintance?"

"Well," the witness replied, " us both belong to de same lodge."

---

Mrs. Higgins had just paid the last installment on a perambulator.

Shop Assistant: "Thank you, madam. How is the baby getting on now?"

Mrs. Higgins: "Oh, he's all right. He's getting married next week."

---

Farmer: "I see you've reduced the fine for speeding from $10 to $5."

Judge: "Yes, the motorists were beginning to slow up."

---

"You look worried. What is the matter?"

"Our little Jack is in financial difficulties."

"Nonsense! The child is only one year old."

"Yes, but he has swallowed a penny."

"Eight men," said the captain, "once were wrecked on a desert island. A year later a ship picked them up. The skipper noted in his log that: 'The two Irishmen had fought each other twice a day during the whole year.

" 'The two Scots had founded a Caledonian Society.

" 'The two Englishmen had not spoken because they never had been introduced.

" 'The two Americans had opened a real estate agency in a palm-leaf hut, with a Kiwanis Club, a Boosters' League and a hooch-making plant in the cellar'."

---

An agitator was addressing a band of strikers. "Only $12 a week!" he yelled. "How can a man be a Christian on $12 a week?"

"How," yelled a voice, "can he afford to be anything else?"

---

The doctor of a country village had two children who were acknowledged by the inhabitants as being the prettiest little girls in the district.

While the children were out walking one day they happened to pass quite near two small boys; one lived in the village and the other was a visitor.

"I say," said the latter to his friend, "who are those little girls?"

"They are the doctor's children," replied the village boy. "He always keeps the best for himself."

Neighbor — Why did you name your baby "Capone?"

New Daddy—Because he has no regard for the dry law.

---

"What!" exclaimed the lady, "you charge me a dollar for that loose-leaf scrap book."

"Yes, ma'am," replied the polite stationer, "that is the very lowest price we can sell it for."

"How is it that I can get one just like it at Brown's for 90 cents?"

"I cannot say, madam. Perhaps Mr. Brown has taken a fancy to you. He is a widower and you are very beautiful and—yes, ma'am, one dollar. Thank you."

---

Minister: "I wish to announce that next Wednesday evening the Ladies' Aid will hold a rummage sale. This is a chance for all the ladies of the congregation to get rid of anything that is not worth keeping, but is too good to be thrown away. Don't forget to bring your husbands."

---

"Did you know that Reed is in the hospital?"

"No! Why I saw him only last night, dancing with a dizzy blond!"

"So did his wife."

---

"There is direct and indirect taxation. Give me an example of indirect taxation."

"The dog tax, sir."

"How is that?"

"The dog does not have to pay it."

---

An Englishman had invited an American friend to visit his shooting box in the highlands. On the first day they did not have much sport, as the birds were shy; but that did not worry the host, who admired the glorious scenery.

As they stood at the top of a fine mountain, from which they obtained a magnificent view of frowning crags and placid lochs, the sporting host said ecstatically:

"Isn't this magnificent? Why, just to stand here makes a man feel like a little grub."

"It does," agreed his guest. "I tell you, I've had nothing but a ham sandwich since ten o'clock."

---

They tell us that adapting ourselves to the depression is merely doing without what our grandparents never had. Well, one of the things they never had was a depression like this one.—*Judge.*

---

"Do you guarantee results in your nerve treatment?" asked the prospective patient.

Specialist—I do. Why, a man came to me for nerve treatment, and when I had finished with him he tried to borrow fifty dollars.

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Pure... clear drinking water
When you have a GOTT Water Cooler handy, you will always be assured of a fresh supply of pure drinking water kept delightfully cool. Order one from your supply store . . . now!
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GOTT Water Cans 1, gal. 3 gal. 5 gal. and 10 gal.
GOTT Water Coolers 3 gal. 5 gal. 8 gal. 10 gal. and 20 gal.
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KEEP PURE DRINKING WATER ALWAYS HANDY

GULF

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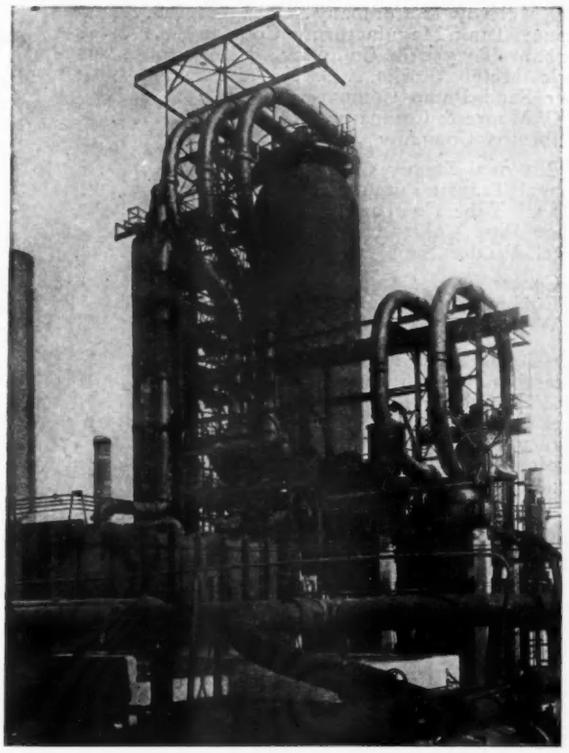

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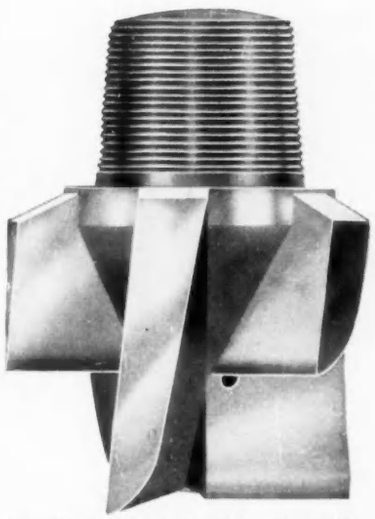

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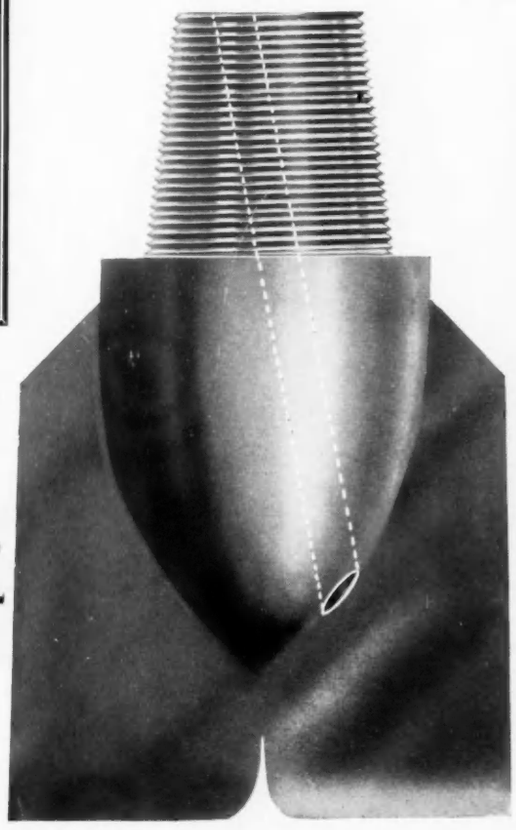
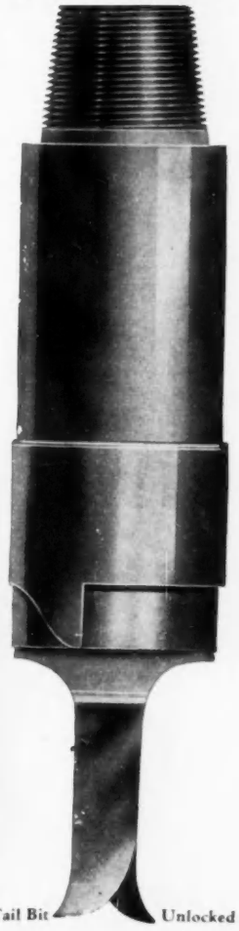
End View

Rock Bit Lock



Gumbo Bit



Fish Tail Bit — Unlocked

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